No. 10.

Field-Book

of

Willis L. Jepson.

Department of Botany,
University of California.

-1903-

If lost, finder please return to P.O. Box 103, Berkeley, California and receive reward.

Berkeley to Vacaville, May 2, 1903.

– The wooded covering of the smooth round slopes overhanging Carzumuz sts on the south is Quercus agrifolia. The Benicia Hills are now very beautiful with their scattered growth of oak and just below them, ~~nearly~~ at their bases (but not on the level) the round dense clumps of the Buckeyes. This is always a favorite spot with them. They look now like great balls of foliage – now arrayed in vernal royalty

– Look up at the great ~~barren~~ range of the mts. east from Santa Clara Valley – the dark hue in the gulches; a band of black, following the gully as sometimes spreading out irregularly

Vacaville

when the slope favors – all this is Quercus agrifolia, 10 to 20 ft. h. I suppose at the most. The dark filling of the gulches might be supposed by some to be black earth. These strips in some places run straight up and down for a long distance.

– Mr. Gilliskie says his Eucalypt. sells for the same price almost as oak.

– Matricaria discoidea = Pineapple weed at Vacaville. Platt says it looks like a green, very green strawberry. Thought by some to smell a little like pineapple. Coming up about yards, in corrals, beaten paths, and wagon-tracks. – everywhere so.

May 2, 1903.

The Vaca Mountains have all the common species of oak that are found in the interior: Valley Oak (the specimens now look rather small to my eye after Willits!); Blue Oak; Black Oak; Live Oak; and Quercus ~~frutis~~ chrysolepis (Maul Oak). There are a good many trees of this Maul Oak along the western crest of the Vaca Mountains. I noted a few years ago near the Signal Station on Blue Mt & now I see a good many between the heads of Dixie & Miller's – of course on the western slopes. One was fully 2½ ft diam. at base, all the rest very tall – 25 ft or more.

Vaca Mts, via Mix's Cañon

= Weldon Cañon.

- Mix's Cañon = Rhus rhombifolia, plenty Fraxinus dipetala in fl. Quercus

Cynoglossum grande in chamise towards summit in fl.

- I have never seen anything that delighted my eye more than the Black Oak shrubs on the summit - just leafing out. The leaves an inch or so long. Some are masses of bright crimson, looking like a white shrub that has dowered itself with spring blossoms. Others are purple, the leaves green & colored on the edge, a few mostly light green, but most highly colored and some are accepted favorites

May 3, 1903

at a glance.

- Quercus chrysolepis a sizable tree 30 ft. high 700 ft. below summit and several noted on ridge and in chamise coming up, the latter shrubs.
- Chlorogalum pomeridianum from Little Oak valley level to summit Vaca Mts. Also Zygadenus Fremonti from alkali flats to summit ditto. But in latter case montane form may be dif. species

- Quercus dumosa ! (not bullata) here also. just passing fl.
- Quercus chrysolepis in chaparral also.

Vaca Mts., via Mix's Cañon
= Weldon Cañon.

- Quercus dumosa ballata on ridge.

No. 2181. Prunus virginiana var. demissa, just below Mix's in Mix's Cañon.

No. 2182. Zygadenus Fremonti, Watr in chapparal on high east slopes of Vaca Mts, in good soil.

No. 2183. Viola ~~purpurea~~ quercetorum B&Cl. in sandy loam on crest of Vaca ridge near _____ School.* There were a few other things that suggested Howell Mt (which we could plainly see looming up in front of us in the Mt. St. Helena Range). These were Pteris aquilina (not much of it) and Quercus chrysolepis. There was also a small cluster of Madrona's!!

* Rhine School in 1890 was low down in Weldon Cañon; it may have been moved to summit of ridge.

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- Prunus demissa in Mix's Cañon. Not rare in the one place we found it. Odor very sweet.

No. 2184. Wyethia helenioides Nutt. On very crest. We noticed Wyethia glabra away down in Mix's Cañon proper.

No. 2185. Berberis dictyota ~~amata Jepson.~~ Same as at Vanden? Apparently so. Quite a little thicket of it on the very crest of the ridge.

No. 2186. Buckeye leaf. Mix's Cañon. = Weldon Cañon.

No. 2187. Fraxinus dipetala H.&A. Plentiful in Mix's Cañon the first 600 ft. alt above Mix's house. Fls perfect (and fertile) and staminate (with abortive ovaries).

Cushion 20 X 20 in or 21 X 21 tant. meas.

Vaca Mts, via Mix's Cañon
= Weldon Cañon.

– The view from the crest was fine. Perhaps the finest view in California for comprehensiveness and comprehensibleness at one and the same time. The ridges are clean cut yet involved enough to be mysterious at certain points. Just below us lies the Arcadian valley of Gordon, Wooden & Capell. Rag Cañon is a long narrow cut and away further Berryessa valley lay like a ~~light~~-green sea with dark islets of valley Oaks scattered over it. Mt. St. Helena, Cobb Mt and Uncle Sam looked as if of the same group. They are high commanding masses as seen

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from here. Tamalpais and Diablo were points of interest.

No. 2188. ~~Echinocystis~~ Marah Watsonii (Cogn) Greene
Leaves very glaucous beneath!! "stems slender not succulent"! pod naked at summit, otherwise covered with scattered weak spines, the spines perfectly glabrous. Pod small, 4-celled, 2 seeds in each cell, 8 in all but only six maturing; seeds round. Below Mix's.

No. 2189. Juglans californica, cult.

– Salix lasiandra Benth, common along Ulatis!
– Poor soil makes or rather helps to make "wind-blown trees". Oak in Williams field wind-blown! those along creek ¼ mile away not " "!

Berkeley

– Matricaria discoidea – following the footpaths of man everywhere, across lots, fields etc

– There is a big Valley Oak in the San Ramon Valley at the southwestern base of Mt. Diablo. It is a large tree, so large that Miss Minnie Ray Wilson has spoken to me several times about it. It stands on the Olney Farm (Mayor Olney of Oakland). The measurements taken by by Mr. Will Olney and Miss Wilson are as follows:–

Circ. at 3½ ft:= 18'-8"
" " base = 24'-4"
Diameter of crown in shortest

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direction = 93'-3"
Diameter of crown in longest direction = 109 ft 1 in.

– The hills are beginning to be brown, especially on the southern shoulders and knobs. Today, May 16, a North wind is blowing – the first of the year since midwinter. As Prof. Hilgard expresses it, it is blowing away $8 100,000 per hour.

— And again today, May 19, the hills of the opposite shore in Marin are pallid-brown and really look unreal – so quick is the transition.

"Keep a good heart, though you be drawn and quartered for it" said the Oak

Berkeley, May 31,

- Went to visit the new home of Mr. Hunt of Hunt Bros Canning Co. of Haywards who lives on Telegraph Ave. in Oakland, each room is finished in a dif. wood: Birdseye Maple Reception Room, Mahogany Living Room, Ginisharo (phonetic) wood in dining room - This last called Brazilite also and said to come from Mexico (or S.A.?) - fine effects obtained by cutting the slabs into two and spreading side by side - thus the patterns in a single panel were duplicated or balanced against each other. Mens smoking room finished in Koa wood from Hawaiian - islands - very luxurious Turkish effect. Billiard room = Australian Blue Gum, very satiny light-colored wood. There was also Eastern Oak,

Mr. Hunt tells me of another use for Eucalyptus - viz. handles for soldering irons used in the fruit-packing business - the only wood that will resist the heat and not burn out.

Berkeley to Ukiah, June 3, 1903

- Rolling valley country at Windsor has Black Oak on it.
- Cottonwood - note an occasional tree from near Petaluma to Healdsburg to Ukiah, and especially along the Russian canon towards Hopland.
- From Ukiah to ~~back~~ valley Summit there are the finest Garryana Oaks that I ever saw - very large fine trees on the south slopes, scattered about and in clumps, with absolutely clean grassy opens between - giving a beauty to these hills similar to that which the Valley Oak imparts to the level! There there is also Quercus Wislizenii! from the

Ukiah to Van Arsdale's Ranch.

valley at ~~Willits~~ Calpella! to summit - all of it has the characteristic narrow and mainly entire leaves. I am sitting under a tree which is typical - the leaves are mostly of them entire but here and there is a leaf very spinosely toothed or some with just a few teeth or one or two! It is positively Interior Live Oak because the branchlets have two sets of acorns!

- It is interesting that Quercus agrifolia does not range much north of Sonoma. I do not know just where it stops - but in any event the Mission Fathers picked out the very

June 4, 1903.

best spots in California for themselves and the Spanish-Californians and particularly the Missions had just the "range" of the Field Oak. Wherever there are Mission churches you find this tree and the tree ranges little beyond the Missions in any direction.

- The Garry Oak seems to favor the sheltering of brush more than some other oaks - often there is brush of some sort just about the tree in the opens.

- Garry Oak, on southern slope, 100 yds. south of fence of road, and 1½ miles or thereabouts south of Van Arsdale ranch and just before reaching the summit - into Walker Valley. Circ at 3½ ft = 16'2". Diam. crown = 66+60 = 126. Height = 80 ft. There is another

Van Arsdale's Ranch in

tree just about 250 yds east, 15 ft. 2 in at 4 ft. All of the trees hereabouts are very large. The first tree furnished specimen
No. 2190. Quercus Garryana Hook Dougl.
No. 2191. Quercus Morelus
Good Type of it.
No. 2192. Quercus, with half Wislizenii & half Morelus blood. Tree stands next to 2191
No. 2193. Quercus, still nearer to Wislizenii. In fact would pass for that. Leaves of this cannot be distinguished from most of 2192. Some leaves of 2192 indistinguishable from 2191 except in size of teeth. Some All three trees standing closely together! Each no. = one tree !!

Walker Valley, June 5, 1903

- Cluster of Redwoods in Walker Valley
- This is a country where we have opens, round-headed oaks & madrones, and conifers - just enough Douglas Spruce and Yellow Pine to give a variety to the mountain uplands. Look south and one sees from Bryant hillside - forested slopes dominated by conifers - look north and you see an openly wooded country.
- Walker Valley to hillside at Summit there is in 100 ft. square Madrone, Douglas Spruce, Yellow Pine, Garry Oak, Black Oak.
- Some fine Maul Oaks along road for about 2 miles before Van Arsdale's
- Two Quercus Oaks have a variation peculiar to themselves, entire and very toothed leaves on same branchlet! Other Quercus oaks

Willits to Sherwood

have variable or very variable leaves but none have just this variation - because the leaves are mostly wholly entire or very serrate.

- North slope & south slope - all alike to Redwood in the Lower Eel but not in this country.
- Willits building very rapidly.
- Deserted and abandoned place between Willits and Sherwood being reoccupied now!
- Rathrdense Virgin Douglas Spruce forests at Sherwood
- Mostly the lower slopes and flats bare here! Crowns covered. Too much water probably oozing out of lower slopes & on flats.

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- Red Oak in the Sherwood forest is California Chestnut (Castanopsis chrysophylla) and is cut for its bark just the same as Tan Oak. It is to these woodsmen here "Tanbark". There are to these men two kinds of Tanbark: Tan Oak and Red Oak! It would seem that they never heard of Chestnut.

There are not many of these trees. They are scattered through the forest like giant sentinels, one here and there at rather long intervals compared with the associated trees. It was with a great pang of the heart that I heard this morning that the hide of this tree went into Tanbark cords indifferently with Tan Oak bark.

Sherwood

- Giant Chestnut (Castanop. chrysop.) - 14 ft at 3 ft
(100 ft. high & shouted say now - Nov. '03) 13 ft. 7 in at 4 ft.
- Chestnut bark 3 in. thick.
- Douglas Spruce 5" "
- Tan Oak seedlings, only two leaves and a very small plumule-like affair above. Put in all their time getting down to the center of the earth. Did you ever notice a dog inside the fence make up his mind all of a sudden to keep up with your wagon on the train? Putting all his thoughts and energy into that one thing? Well, when you are trying to dig up one of these seedlings with a jack-knife you feel that they are "lighting out" or "have lit out" as the country people say of the dog.

June 6, 1903

- Mr. Matt's experience with cattle says steers drive very differently from cows, and cows different from cows with calves. Cows are always looking for a hole in the fence or gateway along the road and will poke through. Steers will edge off to the other side of the road as if scared - as if a dog or animal were lying there. He says also that the cattle co. he was with in Nevada found that it paid to ship by the narrow gauge near the ranch than to drive 50 mi. to broad-gauge; that is the loss in weight on the drive was greater than the freight charge.

- I do not know that Chestnut trees (Castanop. chrysoph.) are any where that Redwood is not. Look up. However, my notes of the Lupa region. The bark gashes of the trunk are very long and little interwoven

Sherwood,

No. 2194. Cornus Torreyi. Lilac-like leaves and mattess-cross flowers.
– Chas. Koerner, landlord at Ten-mile House, Sherwood. Says he has a claim of tanbark – 80 acres – that will yield 80-100 cords. A man knows his business well to peel one cord a day. = C. glabrata Bth.
No. 2195. Chestnut. – Red Oak on account of the red fuzz under side the leaves. (Castanopsis chrysophylla)
No. 2196. Tan Oak seedlings. These occur plentifully in forest in any open spot.
– Yews – "Yews dressed while green make wedges and mauls; grow all shapes. Like Redwood. Fine bark"
– Landlord. (Taxus brevifolia).

June 6, 1903.

– Madrona bark – scaly or better like small shale – or as Mr. Mott suggests like clay mud in pool of a dried summer.
No. 2197. Floerkea (Douglasii Baill.) Fls. pure white. On gravelly bank of stream. Petals notched.
No. 2198. Trifolium. Hill country. Ditto 2197 habitat. cyathiferum Lindl.
– Agrimonia Eupatoria. Petals 2 1/4 lines long, ~~ov~~ oboval, retuse, yellow. By stream at noon camp ~~near Laytonville~~ half-way to Laytonville from Sherwood.
– Mr. Mott says young Sugar Pine is more symmetrical than young Yellow Pine; reversed in age.
– Oregon Ash, common along streams in hills or valleys; always along streams. Noted a Yew Tree ~~near~~ Between Woodpecker Ranch & Sherwood. (Taxus brevifolia.)

Laytonville

-There is a very good growth of Yellow Pine everywhere about Laytonville, north and south. The stands of young Yellow Pine were particularly noticed north of Laytonville. There is of course much open country. Douglas Spruce is not so common as half-way back to Sherwood say. About half-way between " and Laytonville there was considerable Tan Oak. We came through on the direct or eastern road and not via Cahto.

Yellow Pine runs 80 to 150 or perhaps 175 ft. high, the trees often isolated but holding their girth well - most of them slender types.

June 6, 1903.

-From Laytonville north on the Humboldt road:- The Rancho Primero is about 2 mi. north of Laytonville; a fine-looking old-time place (considering the character of this country) which is now in the hands of the Western Live Stock Co. This company is trying to abate the fire nuisance and has posted big printed signs on the trees along the road telling a lot of things you can't do. No hunting, fishing, camping or trespassing on the company's ranch. But with such an extent of country signs in themselves would do little good. The Co. has wire-fenced both sides of the roadway for a long distance and doubtless means to complete the fencing. Apparently also they police the range pretty well. Of all the stock

Long Valley Creek

cos would join with the Lumber cos. the forest fire might not be so frequent a visitant.

- Black Oak leaves do not disorganize quickly. Their margins or signatures cover the ground thickly here.

— The California Democrat of 1902 advertises Yerba Santa bitters. Also the California Pine Needle Co. (mattresses etc)

- Erasimus Oregana sprouts abundantly from stumps.

- Maul Oak - fungus on under surface pollen-like acc. Mr. Mott.

2198a Thysano-carpus curvipes Hook. Var. elegans (F. & M.) Koh.

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- "Tan Oak, Black Oak, White Oak and Live Oak and White Live Oak — these are the oaks around here" - The man from Laytonville; he came by, with a wheel*, dragging a barrel which he had fixed up with a pole so that it would roll! And it ran very easy! He wanted to get it 8 mi. down the road and no man would hire him a team, so he proceeded about it Yankee-wise. He says he has Tan Oak on his claim east of here:- here being our camp spot for the night on Long Valley creek within half-mile of the Rancho Pomeroy northern ranch house.

* bicycle

Long Valley Creek

"In the time of the Aztecs, the [Mexican table-land was thickly covered with larch, oak, cypress and other forest trees, the extraordinary dimensions of some of which, remaining to the present day, show that the curse of barrenness in later times is chargeable more on man than on nature. Indeed, the early Spaniards made as indiscriminate war on the forest as did our Puritan ancestors, though with much less reason. After once conquering the country, they had no lurking ambush to fear from the submissive semicivilized Indian, and were not, like our forefathers, obliged to keep watch and ward for a century. This spoliation of the ground, however, is said to have been pleasing to their

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imaginations, as it reminded them of the plains of their own Castile - the table-land of Europe; where the nakedness of the landscape forms the burden of every traveler's lament, who visits that country" - Prescott, Conq. Mex. i, 4.

"The bodies [of the Aztec warriors] were covered with a ~~thick~~ close vest of quilted cotton, so thick as to be impenetrable to the light missiles of Indian warfare." - l.c. p. 24.

Upper Ranch House, Rancho Primero

From Long Valley Creek Bridge near White's Ranch to Calito, 7 miles, Westport 27 mi., Ukiah 52 miles. — "Old road via Calito not via Rancho Primero and Laytonville". Taken from sign on bridge.

No. 2198a. Thyanocarpus elegans Rof. Near Bridge.

No. 2199. Euonymus occidentalis Nutt. Petals 5, sometimes 6, rarely 4. Sepals 6, sometimes 5. Stamens 5, sometimes 6, rarely 4. — Rattlesnake Creek (Idol House*) Ovary 3-celled, each cell 6-ovuled.

- Head of Rattlesnake Creek = Tan Oak, a little, and a fine lot of Maul Oak on the steepest wall relieving the sombreness of the Douglas Spruce by its yellow-green new shoots just now appearing.

* Mendocino Co.

to Idol House to Blue Rock, June 8

- Maul Oak, at first ranch house S. of Blue Rock Ranch House, 18 ft 6 in. circ at 3 ft on upper side (7 ft on low). 65-75 ft. high; 100 ft. broad

- Douglas Spruce seedlings — cots = 7+8 Blue Rock Ridge.

- From noon camp on Blue Rock Ridge (1 mile from Blue Rock) we have a fine view of Red Mountain made famous by Kellogg's botanizing in early days. It is N.W. of this point and 5 miles away in an air line. A big mountain with very long low-rounded top, scattering timber on the side towards us with the red soil showing everywhere, and apparently heavily timbered on the other side.

- Blue Rock = Garry or Black Oak, Bay Laurel and Yellow Pine

Mendocino Co.

Blue Rock Ridge to Bell's Springs Ridge

- Maul Oak, ½ mi beyond Blue Rock on point of hill, 150 yds off road, 18 ft 5 in at 3½ ft; 60 ft. h. (3 trees in a row, this the middle tree
- Black Oaks on Blue Rock Ridge - the much branched erect branches form and also the form with few great branches
The Black oak display on the Bell's Springs ridge is also very fine, the whole ridge is beautified and crowned with it.
- Maul Oak - round-headed form and slender form (100 ft. high) in bottom of Rattlesnake Canon at Cummings. Maul oak is a rare tree on the whole but in favored situations it is sometimes the predominant oak and where we find a good many on a hill we notice it!!
- Shell Rock, "square jagged rock"; and sharp peak = Iron Mt. The former 5 or 6 mi. S.E. of Blue Rock. The latter

June 8, 1903.

about the same (?) distance S. of Shell Rock.
- Black Oak, at 5000-6000 ft. in the Sierras, at 3500-4000 ft. on Blue Rock Ridge, near sea-level at St. Helena - the greatest altitudinal range of any Calif. oak. Heals over its axe-scars in blazes very rapidly.

No. 2200. Blue Rock Ridge. Douglas Spruce. Pseudotsuga menziesii (Mirb.) Franco also cones.

- Bells Springs to Laytonville, 25 mi
  to Willits, 50 "
  to Ukiah 75 "
  To Harris 14 "
  to Garberville 23 "
  to Briceland 30 "
- One passes on a broad hog's back from Blue Rock Ridge to Bell's Spring Ridge; by a narrow & low hogs back to the Harris & Ft. Seward Ranch Ridge.

Bells Springs to Harris to Garberville, June 9, 1903.

- The country is more open about Harris. On the ridge above Harris clusters of Douglas Spruce and Tan Oak crown the summits or cover favored slopes - 1/10 of the country just here. Fire has gone through a patch at Harris and killed the lower branches but the tops are uninjured.

No. 2201. Wyethia. Very abundant on "laudatidy" slope, coming on to Bells Springs Ridge from Blue Rock Ridge.

No. 2202. Plagiobothrys nothofulvus gray. / Ditto

No. 2203. Black Oak. On Harris ridge.

- About 4 miles beyond Harris we turn off across country to Garberville. The road is steep and rough but a light outfit can go over it very easily.

About one mile up the hill from Harris we lunched at a spot that gave a fine view of the great sweeping crescent of the Inner Coast Ranges, the low Wrazville Gap, North Yolla Bolly (one peak at one end and two at the other), Middle Yolla, South Yolla & Mt. Linn and the more isolated high points southward. The air was clear and the prospect over the numerous intervening ridges lying in the Eel basin was fine.

Briceland

-Had a hearty welcome from Mr. Chas. Wagner of the Extract Works here. The works are not running now as they are making alterations on the pans. Peeling is in full blast.

Mr. Wagner has been in the tanning business since 1856. He went out on to the Mokelumne River flats and peeled the live oak, peeling as high as they could reach but not cutting down the trees and taking the rest. A great waste he thinks now. It was all open country he says and one could go and do what he pleased. His tannery at Stockton had their supply of bark from there and from

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the base of Mt. Diablo. The bark was rich in tannin but the result on the leather was not so good. It made a rather brittle leather.

The tanbark peelers here put in alder with Tan Oak bark Because, says Wagner, it will pass unnoticed it has some tannin. Wagner did not recognize that ~~it~~ was not my sample of California Chestnut Tan Oak bark. He noticed it looked ~~not~~ to have a heavy "ross" but would have passed it for Tan Oak. His book-keeper says that the peelers pass it in for Tan Oak bark in Mendocino Co. but that after a while the tanbark companies made a strong kick and kept a sharp eye out for it. Those men who were running one-horse

Briceland

mills to grind tanbark for shipment found that it was so very fibrous as to be very hard on their mill.

Wagner says the Monterey Co bark is the best and is a very smooth bark. The very rough or deeply fissured barks here have a big "ross" which is a detriment. It contains little tannin. Wagner says that in the case of one of the European trees the ross is shaved off. We could not very well do this here as we should lose too much flesh.

A tan oak ~~trim~~ has lost 11 per cent water in a year.

Second-growth bark in Santa Cruz has been Peeled but the

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bark is "soft" and contains little tannin. It is about as thick as your finger; has about 10% tannin. The tanners don't like it and steer clear of it now that they know it. It is exceedingly smooth

— The ride from the summit of the Harris ridge down through the Robertson ranch to Garberville was full of beauty. The hills were only about 1/3 wooded, but the massing and the scattering of the trees was in the highest degree pleasing. We looked down into a basin of a creek that emptied into the S. Fork Eel. It had numerous branches and gullies, elevations, depressions and slopes. There was a great

Bricland

mass of Douglas Spruce there, and in the protecting centre of it shared the gray cones of the Tan Oak. There were clumps of Canyon Oak or scattered trees, and along the gullies Bay Laurel or forming a clump of other trees on the slope, bare knolls, a Maul Oak all in yellow-green now and fluffy with its mass of new verdure and flowers standing on a projecting knoll on the slope and attracting the eye's attention from the other trees – and the brown brown slopes and glades everywhere between. Every point of the Bay Laurel is erect and it is a dense tree – otherwise it has little

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distinction. The Douglas Spruce is nowhere a forest here or even a grove scarcely – at least not a grove by itself. It merely gives spirit to the tree growth by springing above the lower growth.

– Tan Oaks have trunks like birches sometimes but such growths are young trees about 8 or 9 in. trunk diameter.

– Ceanothus Parryi is surely the most handsome Ceanothus in California when in flower. We saw a fine individual between here and Healdsburg. C. thyrsiflorus was with it.

Briceland

Taxus brevifolia.

– A woodsman here says: Yew is a very durable wood, very hard, lasts forever, never rots. Man by name of Harkey found yew logs in old river terrace on Larrabee Creek and got them out and split them up for fence posts. They've been in 10 years and show no sign of rotting. Sometimes the log stuck out of the ground and he followed it down. Mostly buried 2 ft. Yes, all make land. Creek nowhere near there now. Was made before first settlers came there 50 years ago and must have been made a long time before that. Harkey lives about 7 miles from Blocksburg. Yew is used for mauls & furniture.

– Redwood tree felled and top burned; is sprouting near cut end from slender woody cone-buds similar to those on Salix lasiandra as noted at Berkeley. Reminds one of

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Blue Gum sprouting at the Hardwood Mill of Gillispie at San Jose. Lower end anchored in cement and upper used to support a heavy brace chain. The upper end had cut a sprout 8 in. long when I was there. All this, in both cases arises from excess sap in tree and when that is exhausted there is an end to growth.

– Mr. Whitemansays Maul oak is used for "slugs" ('wedges')

– 75% of trees in slope near Briceland are ring-circle trees. These trunks are always of very uniform size.

– Borers in felled tree, working in bark, enter from outside, leave clear passages behind them. Work in pairs. "Head" first. –

Mr. Nott

Briceland

Peeling south of village 1 mile. - Typical tree 90 ft. high. Clear of branches for 32 ft. Peeled for 60 ft. Bark at end of last rim 5/8 in. thick or triflo more. Beyond 32 ft to 62 ft the bark on the under side (averaging 1 in. thick) was left because the log lay on the ground Limbs unpeeled but bark thin. Stump 2 ft 6 in in one direction & 2 ft in other (2 ft 9 in. high.)

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- Swamping out with packsaddles on mules, rim-frame arrangement for holding the lengths - 400 lbs to load.
- Woodsman says tree sticks sooner on north side than on south side.
- Some trees peel better at top, some at butt. A tree being peeled by an Indian; does not slip well at butt; results in much "chipping". Would it not be better to use a spud and save chipping and splitting up into small fragments? Bark beginning to stick now. As to top & butt probably depends on just how the sun strikes it. Peelers have been through this portion of the woods before, this season peeling. Certain trees were left as they were not ready for peeling. The peelers were green peelers and injured the "passed" trees by

Bricland

trying them. Such a practice hurts the tree badly on that side, "killing it" more or less and it will not afterward feel. The Indian said that in most woods they were not allowed to try a tree but once but here they did just as they pleased. The bark on the tree he is now peeling is a smooth-surfaced bark and shows bright crimson when cut by the axe. (See sample No.) The Indian had his soles and heels thickly spiked. A log with the bark taken off is as slick as glass or slicker. Mr. Nott is trying his hand at the peeling while his Indians go to dinner. He says that if there is anything a

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woodsman hates it is to have someone else use his axe - But Lo, the Poor Indian has to stand it!

- Mr. Nott says: Sanger Lumber Co flume 5-6 miles long, exceeded only by the Madera Co. Flume V. shaped. Planks not to exceed 10 or 12 in sent down since the wide clear lumber is very valuable and is damaged in the flume in which the waters run with great swiftness. At first, planks sent down loose but now made up into bundles with iron toothed clamps with a wedge driven in to sink the tooth in the outa board. Such bundles are made up into a train. Loose boards get caught on a projecting nail head or loose lining board and the result was a jam, the boards

Briceland

piling up and flying off into the ravine or maybe breaking the flume. The flume is lined with ½ in. stiff which is replaced as worn out. There are flume tenders (who patrol the flume by a foot-board) every ten miles. The lumber is considerably damaged but is a great saving over hauling by wagon. It would have paid in the first place to put in a railroad - considering the number of years and quantity of the timber. At the upper end sawdust is shovled into the flume. It is carried down, sifts into the cracks, swells and helps prevent leakage.

June 12, 1903.

- One man "rings" while the other man follows stripping the bark. The Indian says there is a little Tan Oak in the Scotia woods but that they do not save it - cut it down burn it.
- Nearly all the trees are badly injured at the centre of the trunk by fire or rot. The trees are mostly fire-injured or hollowed on the upper side by fire. The result is that dry rot gets in with fatal effect to the log. Trees 50-60 ft high are standing - peeled, two rims being taken off. Another rim could be taken off to advantage but it is too high and they won't trouble to cut the tree down.

Briceland

- The Indian says a good peeler will fall a small tree first and lay the big tree across it, so as to be able to get at the under bark.
- 2600 lbs of tanbark is a ton here. It is ready to come in when it begins to "coil" in has "curled" i.e. curls.
- Mature Douglas Spruce trees have a very rough bark which is very deeply furrowed, the bark being 3 or 4 in. thick.
- Maul Oaks have a thin bark, perhaps the thinnest of any of the Calif. oaks which become trees. The fissuring is superficial as if narrow ribbon-like pieces were laid on the outside and more or less irregularly interwoven. Black Oak has a thick bark. The bark is brittle and reddish, but not so red as the brittle bark of the Coast Live Oak - Cont. 5 p. on.

June 12, 1903.

- The Foreman of the tanbark camp, Mr Fearrien says there are four or five days in August in which oak peeled will not sprout - about Aug. 14 - Redwood the same. I noticed White Oak (Garryana) was used for fencing posts on the Harris ridge - great quantities of them. This man says White Oak is used; Black Oak will not right off, bad as fir (Douglas Spruce). White Oak soft, stick your axe right into it like Redwood, but heart hard. Tan Oak standing peeled trees live 2 yrs, die 3rd year. Mules carry 300 lbs of bark. Best way of getting it out. Saves making sled roads. Can carry it out of any place - even from one tree by building a trail - saves handling and breaking up. A

Bricéland

tree will yield often a cord, a cord and half. The record yield here is 1 2 3/4 cords.

– Grup of tan oak trees standing 45 – 60 ft. h., ½ – 1 ft in diam. at 1 ft from ground. All peeled standing; peeled last season (1902) probably. Two rims taken off – which makes the top of the second rim just as high as a man can strike with an axe. One tree before me furnishes sample No. 32., the bark being taken just above second rim and being 3/4 in. thick. Above the second rim the log is almost clear for 20 ft. and almost maintains its girth, for that distance. Tremendous waste at 8 ft. ful methods; but these men have at any realization of it. The stuff is so abundant, the growth is rampant every-

June 12, 1903

where; they are so much in the habit of slashing and cutting and taking just what is most profitable for a day's labor – the same principle the manufacturer or union man works on.

– Madrona trunks – diam. often much greater one way than another – as if flattened in response to strain. Madronas rarely stand erect, the load of the crown being far off the base of the trunk.

– The most impressive tree in California is the Sequoia gigantea, the ~~most~~ one with greatest dignity is the Valley Oak, the most charming is the Sugar Pine, the most useful to man the Coast Redwood, the most singular is the Santa Lucia Fir, the most prized by the Indians is

Briceland

the Nut Pine, the most symmetrical is the White Fir, the rarest is the Torrey Pine, the most picturesque is the Monterey Cypress, the most provident is the Bishop Pine, the most sombre is the Douglas Spruce, the most graceful is the Black Oak, the hardiest is the Sierra Juniper, the most isolated is the Foxtail Pine, the most beloved is the Field Oak, and the tree at once the most striking, the most charming and most full of surprises is the Madrona, the Robin Hood of the Western Wood, enlivening the Coast Range woods with bright colors and assuming

June 13, 1903

the title role in the holiday-makers and "sylvan masquerades".

- Black Oak Bark is thick; so is Coast Live Oak.

- Larval borers get into down Madrona logs and honeycomb it with tunnels which they fill up behind. A worm about 3/4 in. long.

- Bark sticks more quickly on N. side tree than S. side. So one often sees fallen logs peeled only one side. = (Tan Oak).

- Mosquitos breed in hollows of the trees. When a Tan Oak tree is felled a swarm of mosquitos issues as the tree crashes down - being somewhat fazed up.

Briceland

- The grain of Tan Oak is very close. Trying to stick an axe into the top of a stump is like hitting a hard rubber block a blow with a dull instrument.
- Madrones often have very big trunks and a wee tuft of a crown reaching out yonder. But a Douglas Spruce marches straight zenith-wards, turning not to the right nor swerving to the left.
- Tan Oak trees 4 in. in diameter, one rim peeled, 3/8 in. thick at upper end, other trees 50-60 ft left, 2 rims only, bark left = 3/4 or 1 in thick and axe is clear for 20 ft.
- Tree on ground 70 ft. h; 1/3 felled i.e. 1/3 axe is. Usually touch

June 13, 1903.

nothing but axis in any case.
- Quercus Nuttallii sprouts abundantly from base of stump when tree is cut.
- Reasons for names of California oaks - Maul Oak - wood used to make mauls. Spanish Oak, probably first used by the Spanish-Californians; Encina, Spanish name for an evergreen oak; Roble, the Spanish name for a deciduous oak; Blue Oak, from the color of the foliage; Mush Oak, from the softness(?) or easily rotting character of the wood; Live Oak, because evergreen; White Oak, the bark and wood white and leaves often lighter in color than the Black Oaks which have dark wood and bark and dark glossy usually evergreen foliage; Pin Oak, because the wood is used for pins in building, being hard; Squaw Oak, the acorns used

Bricelend

by the North Coast Range Indians; Tan Oak, the bark used in tanning; Scrub Oak, from its low scrubby character. In general I prefer those names which are most widely established among the people and those are most widely used when the name represents a feature visible or more or less striking to the eye of the observer surveying the tree as a whole, or limits its habitat, or the economic use of the wood or bark. The name Digger Pine (widely used by the people and which in origin is a folk-name) is to be preferred wholly to Gray-leaf Pine, conceited by the botanist.

June 13, 1903.

- A great many logs, especially large logs, lie so flat on the ground that much bark is wasted - and the rest of the bark on the tree. Trees should be so felled that they can be peeled all around, as across a gulch, where this is possible. That is, a Tan Oak would often be felled where a Pine never would be. Again a small tree may often be felled across the "right of way" of a tree that is to come down and so keep it off the ground. Or it might to pay to have a block under the end of the log. If the tree were good and ready for peeling the underside of the log-bark could be eared easily. The block could be taken out with a crow-bar or small jack.

Bricelend

There is too much of an attempt to peel trees which are not ready. They take off a rim by chopping it off, half a rim above and finally give it up in disgust. The woodsmen are always risking that the top of the tree will peel more easily than the butt and so many a log is 80% per cent wasted. There is always a certain waste - a necessary waste - But it should be a minimum, say 1 %.

June 14, 1903.

- There is a little cemetery in the woods within 200 yards of the village where they have attempted to kill the Madronas - and not one has as yet actually given up. About 5 or 6 years ago a big trunk was completely girdled and it has been slowly dying ever since. Only one branch is really alive. The edges of the bark on the upper side of the girdle sent down long tongues or lava flows as if in attempt to join the bark tissue below. Another tree succeeded in two places and there was a swollen place in each case like an arm, for the whole tree top had to be supported through these two channels. In the

Briarland.

case of the first tree the struggle in the top was doubtless aided by a number of sprints near the base of the trunk. If the wood can carry elaborated sap here would be the chance to demonstrate it.

– A great many San Oaks build out buttressed bases or tabulations like the Madrona. These bear some, often a great many, conical adventitious woody dormant buds. When the bark is taken off there is revealed a display of alps, great clusters of large and small "mountain peaks."

June 14, 1903.

– There are 8 leech-tanks in the leeching-house. They have false bottoms, composed of slats ~~with~~ spaced at short intervals. The lignin works through to the true bottom. The spent bark is taken out of the vats through a small opening in the side. The vats or tanks are made of redwood. The bark is brought in by a conveyor from the mill-house where it is ground. The lignin goes to a receiving tank in the evaporating house. The evaporater is a great globose copper vessel closed on all sides and is a condensor of the vacuum pattern. There is a scheme for reducing atmospheric pressure by running a coiling pipe 20 ft or so above the con-

Bricelaud

densor. The liquor never gets above 125° or 130° F. in temp. This prevents burning of the liquid.

Wagner says that the barrels of the California extract Co's liquor exploded or burst in transportation and this was caused by the fermentation of the liquor due to the high heat of the pans on which it passed. The liquor was "burned" and tannin solubles were converted into insolubles which brought about fermentation. The steamship Co's, says Wagner, will no longer receive their barrels for export on account of their bursting.

June 15, 1903.

- Wagner says that there are no tanneries in the southern part of the state - none south of Santa Cruz; - none either in the Sacramento Valley; - one in the San Joaquin except at Stockton. Long ago a man named Christ or Krist had a tannery at Marysville. Yes, there was Bark up there and they got it cheap. He made money and came to Oakland. Gambir is always used with Tan Oak bark. Nobody uses Tan Oak alone. It makes too dark brown a leather. Quebracho wood contains 20 % tannin. The extract is dry like sugar; it is cheap.
- Mr. Mott says the condenser is after the fashion of the Spreckles Sugar Refinery method.

Briceland

- Wagner began business in Stockton in 1856. Went to Santa Cruz and worked in the tanneries there (1859) to learn more about the business. Returned to Stockton. Afterwards took Kuleman into partnership and later Salz. These latter set up a tannery at Benicia which finally resulted in their withdrawing from the Stockton plant.

- Trees which are mere saplings or poles should not be peeled. Mature trees which are peeled standing should not be peeled but should be left to grow and respond to the increased advantage which results to them from taking out the mature trees. Little trees 3 or 4 in through have

June 15, 1903.

one rim of thin bark removed! Big trees are abandoned as to branches with much thicker bark. As a rule branch bark can never amount to much. The rule then in tending a Tan Oak forest should be to grow pole trees and send them as high as possible. The woodsman seems to think that he must take something off every Tan Oak tree that is in mere ground scrub.

No. 2204. Maul Oak sprouts from stump of a large tree. Very thrifty and abundant. Briceland

No. 2205. Sprouts from stump of ~~Oregon~~ Ash (Fraxinus latifolia Benth. ~~Oregana Nutt.~~) showing results of mutilation.

Briceland

- Wagner says that a Frenchman had a tannery at Mariposa in the sixties. He was an inexperienced tanner and made poor leather but it was not the fault of the manzanita leaves and twigs which he used. Wagner says he made some good leather. Reckless sort of fellow. French nobleman Blanville was his name.
- A woodsman chopped away for nearly a week at a mighty monarch of the California forest and one day in going to the opposite side he found three Chinamen who had been chopping away at the same tree for a month. — Said the woodsman.
- Hide and Leather, Chicago, etc.
- Shoe and Leather Reporter, 183 Essex st. Boston.

June 16, 1903.

- W. Eitner, Der Gerber, Vienna.
- Proctor, leather-chemist authority in England.

- Split shakes (Redwood) are said to last longer than sawn, and are worth in the market about $2.00 per M. more.
- Great humming of bees about Rhamnus Californica which is now in full flower.

- Louis Falkenau, 538 Sacram. St. S.F. reports on spent bark, Briceland :-

Moisture	9.00 %
Insol. Solids	89.14
Sol. "	1.86
Tannins	.90
Non Tannins	0.96

Briceland

– Wagner says that the largest and best establishment in California was in tanning 1857 at Santa Cruz. He does not remember exactly about the number of cords of tanbark used but he figures that about 12,000 cords of bark were used (at Santa Cruz)

– Mr. Fearrein says that a quarter section yields on an average 350 cords of bark, hereabouts. He is the foreman in the woods.

– The oak extract people would like to make a dry extract but it isn't possible to do it in any commercially profitable way. The extract as turned out here at Briceland contains about 15% water while

June 16, 1903.

Quebracho extract which is dry contains 22%, the difference being that the latter has the power to crystallize when it cools.

– Vine Maple leaves on top of tree always in pairs – 2 leaves from a bud. The branchlets grow little each year – on one case a branchlet had grown 4 1/2 in. in length in 15 years. The foliage is thin.

– Garry Oak for posts, split off sap & they last 15 or 20 years, says a man on horses. whom we stopped and quizzed. Also use Black Oak. Only use the oaks when they can't get Redwood. Also use Red Fir, the lower branches which are very pitchy and are a long time rotting but must get 'em too high up. Only the lower. The main trunk rots easily. The

Briceland

Wilder Ridge is a great bark country but is too far away from shipping pt. to do anything with. Better bark country than this. Flats over there all covered with Tan Oak. 200 acres of Redwood, isolated cluster, on Mattole about 10 miles above the Upper Mattole School. All of which said the man

- Fire-cracker flower - 27 in cluster and 2 or 3 small buds; all the 27 in fl = Mott.

- A company of us were talking of the beautiful forest things and Mrs. Houston spoke of the handsome Rose-bay. Finally Mr. Wagner said humorously that the most beautiful thing in the world to him was a fine piece of leather - no, no, - no! fine extract. - fine extract now!

June 17, 1903

- Mouth of extract works 1½ m. - ridge peeled in 1902; shoots came up abundantly as shown by photographs in Spool 5. Country was fired in March or April to rid the country of dead tops and protect the works against a general forest fire. Sprouts in many cases were all killed but new sprouts are now appearing plentifully. Even the dwarf Tan Oak 1 ft. was killed but is sprouting in just the same way Perhaps 20 pc. of the low brush shows no sprouts, but as the sprouts are just appearing there is time yet for them to show. 1 to 3

Briceland

- Voices of the Madrona: - coming along the ridge above the cemetery on last Sunday - see note back - I heard in the woods that crowned the hill voices of anguish and of pain and of remonstrance succeeding each other, mostly stifled but some sharp or quick as a cry of "Doit"! I was instantly held by the noises and turning to descry their source saw 2 branches from Dif. Madrona trees cross high in air, and rubbing against each other sobbed the swaying breeze. A superstitious or imaginative person would have been quite in their element. It is wonderful how few branches cross in the forest - so thick are the trees - yet does Nature avoid conflicts.

June 18, 1903

Tan Oak.

- A foreman in the woods says: - A big tree may make two cords (5200 lbs) bark but usually it takes two average trees to make a cord. The ton was 2450 to begin with; the putting in of green bark caused it to raise to 25500 and then 2600. Bark was originally sold by measure but on account of inconvenience the buyers took to weighing a few cords to determine the average and finally weight became the rule. Bark lies in the woods three weeks before being piled and brought in. It is supposed to be ready as soon as it curls.

This country in here will average 400 cords to quarter-section: some quarters here as little as 222, some

Briceland

as high as 500 or even 800.

- Nature's scars - an ascending Madrona trunk bore a series of scars along the upper side of it. A Tan Oak tree had fallen years ago and made them - In coming down the trunk had sheared a big limb off another Tan Oak tree. The overgrowth of wood here - in section revealed how long since the catastrophe occurred - viz 8 yrs. - Mott.

- Wagner took the gold medal for the best oak-tanned leather at Chicago and Paris. I asked him if he meant to compete at St. Louis and he said jocularly that he thought he ought to give others a chance. And, said he, perhaps I better rest on my laurels!

June 18, 1903.

- Man in the woods says that it is Chris Erickson of —— Beach, near Ferndale, who owns the big Madrona above Ettersburg.

- Madrona rump often has conical woody adventitious buds in great quantity as has Tan Oak.

- A Tan Oak log which is being peeled make a sound that is like nothing so much as the sound of a person who is receiving a cold plunge of water suddenly and says, O-o-o-o-o-o-. This is especially the case when a rim comes off whole or half of it and peels easily.

Briceland

—Samples of tanbark from single Tan Oak, tree in northerly hollow, 96 ft. high, 1 ft. 9 in. diam. at base.

No. 37. At base of trunk, 1 7/8 in. thick, very little "rosa" (1/4 in.); smooth.

No. 38. At 15 ft. 1 5/8 in. thick. Rather deeply fissured. Rosa as in previous no.

No. 39. At 31 ft. 1 3/8 in. thick. Bark white, fissures in two previous nos. reddish brown

No. 40. At 45 ft. 3/4 in. thick. White, slightly fissured.

No. 41. At 60 ft. 1/2 in. thick. White and smooth.

No. 42. At 66 ft. 5/16 in. thick. White and smooth.

No. 43. At 74 ft. 3/16 in. thick. White and smooth

No 44. At 78 ft. 1/8 in. thick. White and smooth.

June 18, 1903

No. 45. At 84 ft. 1/16 in. thick. White and smooth.

Tree 96 ft. high. All samples taken from one side of the tree - the north side. Basal samples appear to be bark of medium richness.

Nos. 43-45. look like Alder Bark.

No. 41. might pass for alder.

Nos 37-40 have much moss, all above have lichens

Nos. 37, 38 & 39 look red in section, the remaining nos. have less color or are yellowish.

Bricland

-Wagner says the standard ton weight of tanbark in S.F. market is 2400 lbs, or 2300 for bark of previous season. In the woods it is 200 pounds more to compensate for shrinkage due to loss of water from green bark. There is also loss of "rose" in handling and loss of sticks in transit - this often amounts to 100 or 150 pounds.

The wood is used by here for sled runners, wagon pieces, etc. We get it out before the sun cracks it, saw it up, and soak the sap out of it. We have some good planks. It will not do where great strength is required. It is not as good as Eastern

June 18, 1903.

oak. But would do for interior finishing. It checks very quickly lying in the sun and they say rots in two years. That it rots so quickly leads me to believe it has tannin in it.

Canaigre root will not do for tanning. It has too much starch in it. I have used it in certain places - for curling hides it is good - But I do not use it beyond that.

Chlorides will not do in tanning. They make beautifully clear liquors but the hides would be ruined. A Chicago chemist gave me this advice. Best advice I ever had. But a chemist does not make a good tanner - All of which says Wagner.

Briceland

- Douglas Spruce bark - 6½ in thick at 4 ft. from ground.

- Conclusions
  Expert peelers should be employed
  Peeling by contract is wasteful
  Trees should never be peeled standing

- Trail builders - surface leaves and limbs must be cleared off. A broad edged pick is used. The mules otherwise - loaded heavily - would slip and not be able to get up again.

June 18, 1903

Tan Oak.

- A tree 1 ft. diam = 80 years
- " " 1½ " = 90 "
- " " 10 in. " = 75 " Bark 1-1¼ in thick at 1 ft.
- " " 10½" " = 90 years; is 74 ft. h. + was peeled 24 ft.

- Any number of trees 10 in. diam and 50-70 ft high with 1 or 2 rims taken. The abandoned lowest bark being nearly or quite 1 in. thick.

- "Leir Oak" here means Maul Oak or indeed it does, I presume, everywhere throughout the ~~Red-wood belt~~ Tan Oak belt.
- Black Oaks and Garry Oaks often send down long horizontal or declining branches conforming to the shape of the hill slope they inhabit.

Briceland

– Two men work together, after the first rim is taken off. One chops from each side; after the Tan Oak falls one goes ahead ringing and the second follows peeling; sometimes or rather usually the first has to clear off the branches. The first man after ringing to the end of the proposed peeling starts to peeling backward.

–A peeler says if a fire had been run through there woods (clearing out the brush) two years ago it would not have cost half to get the bark out. Most of the work now is in swamping huckleberry. Otherwise it would have been easy to build trails.

June 18, 1903

– The wagon-maker at Briceland says of Tan Oak:– Best wood there is for wagon fellows – does not shrink. Used it for bolsters, tongues, hounds, reaches, etc, doesn't check. Must be kept oiled and painted or it will rot — that is the only thing to be said against it. Must have the sap soaked out of it or it will check badly. I prefer to saw the green logs but have used that down six months. Wagon wheel I made for —— have not been set in six years. Takes a fine polish. Bar at Blocksburg – you can see your face in it. Use Alder or Redwood for brake blocks. Must be a soft wood for

Briceland

that purpose so it will take hold of the wheel. Tan Oak gets very hard and after it had worn smooth a man would have to use his leg heavy on a brake to get any returns.

- The close grain of the Tan Oak wood and its uniformity is shown by the difficulty of counting the rings.

- The wagon-maker says McKee made a set of beautiful furniture for a bedroom suit of Madrona - but he couldn't keep the borers out! Nor can the borers be kept out of Alder.

June 18, 1903

B.L.

- Mr. Stone, proprietor of a mill near Garberville has a good opinion of Tan Oak. He saws it up green; sawed up a lot into 7/8 stuff, piled it outside, with sleats between and it checked less than Redwood! This lot was sawed for a man in Briceland who wants it for wainscoting a room. Grants that Tan Oak must be sawed up right away to prevent it checking. He did not treat it at all by soaking or steaming. Says it makes the best fellows for wagons of any wood.

- Mr. Wagner says that his company has used it for "felons" also and with great success. He called it felons said I to Matt because they were in for so long! Which is very painful.

Briceland

- Len Dusenbury is the man who is to me Tan Oak for finishing in his times in Briceland.
- The bark pieces when taken off and turned with the inside up, and the flesh is thus exposed to the sun.
- Huckleberry fills in the hollow with a dense tangle - pure thickets of it 5-10 ft. high. It is so everywhere in the Redwood belt. If they use it in the S. F. district for decoration & draw their supply from here there is no danger of extermination as it can grow here faster than it will be cut out.

June 19, 1903.

- There are three kinds of Live Oak in California: 1- Coast Live Oak or Encina; 2 - Interior Live Oak; - 3, Mountain Live Oak or Maul. These three species do not mingle anywhere or rarely, altho' they overlap altitudinally. So I find that each one is, in the various districts simply called Live Oak. The first two are Black Oaks with dark bark and the third is a White Oak with very light-colored bark. The bark of the first is thick on the trunk; of the third, on the trunk always thin.
- Peeler says Redwood area on Mattole 15 m. from here consists of only about 40 acres. Rainfall at Petrolia to April 1 = 90 in. this year.

Briceland

- Peelers take the cream of the bark and that is all. Often too, they slash right and left. A small tree lodged partly in coming down and they cut six young Tan Oak poles to let the tree down. These poles were about 25 yrs. old and 20 ft. h.
- Stump sprouts of Laurel. buried & brown. here in the shady grove of camp at creek.
- Tree Tan Oak 9 in. diam. - fire-burned at base, rot entered, hollowed slightly at 3½ ft. above base, discolored at heart at 10 ft, slight discoloration at 15 ft, perceptible also at 19 ft. This is typical of most trees
At 10 ft discoloration surrounded by small brown spots. A few brown spots at point above

June 19, 1903.

- There are to the people, to the folk, three kinds of oaks in California: 1.- White Oaks (in which they include the Valley Oak, Garry Oak and Blue Oak), each one of these being called White Oak in its district, and none of these overlap or scarcely altho the Blue Oaks usually cover the Valley Oaks altitudinally). 2:- Live Oaks (in which are included those discussed on the previous leaf) 3:- Black Oaks, including the Kellogg Oak. This is more typically an Oak on account of its leaves than the Encina class and has a blacker bark. The Encinas are the sort that Easterners want to call "apple-trees"; while the Valley Oak is their "Elm"

S. Humboldt Co.

Bricelend

- The largest tanning firms in the state in order are: Kullman, Salz & Co, Frank Brothers, Wagner Leather Co.
- Bark to all appearances dry has lost 11% since last Aug. It was somewhat green inside! - Wagner
- Bark deteriorates with age. Rump bark which assayed 2% lost 2% after six years - Wagner.
- Stump - shoots between 1400 and 1500 - Spool 5. No 3 - The only gap where fire had followed stumps on one side. -
- Hollow stump but wood all around, two edges of ingrown bark - wood 4 or 5 in thick at thinnest part

June 19, 1903.

- An Indian half-breed says: Pigeon-Berry bark (Rhamnus Cal.) peeled upwards causes you to vomit; peeled downwards moves the bowels!
- A young Douglas Spruce is a beautiful tree - up to 40 or 50 ft. especially 20 or 30 - but old trees are sombre. Young trees furnish the "Christmas Trees" for S.F.
- F.C. Endsie, quarter-breed, works for Extract people. Boys call him "Butch". Lusty fellow. The family live 4 mi. from here. 8 brothers and 4 sisters, 2 bro. being half-bros. Endsie was at one time well-to-do, they say, and connected with the Vallejo Flour Mill.

- No. 2206. Rhamnus californica typica CD. Wolf Note the old leaves hanging straight down when the new shoots begin to grow!

Briceland

- The woodsman seem to have a grudge against the Madrona. Every where one sees axe-scars, blazes, peels, etc. It is very easy to cut the name in it. Then great sheets are often taken off; so often about here that I concluded small boys were doing it for fun. Not exactly for that reason merely, and yes. They use these pieces for sleds in sliding down hill because they are so slick. We can peel the Madrona with a jack-knife say the half-breed boys; and nearly all children hereabouts are half-breeds. Briceland was at one time - 4 or 5 years ago - ex-

June 20 - 22, 1903

clusively half-breed and they do not take kindly to the whites who disturb their solidarity. Garbarville in Eel River is the white town and I noted many exceptionally pretty young women in that region. - But to return to the Briceland half-breed boys - they also make horns out of the Madrona bark rolling it in such a way that a great noise can be produced with the finished product.

- Apropos of the recent assassination of King Alexander and Queen Draga and the failure of the Minister of War to get control over the telephone, there is a fine skit in Life of May 14, 1903 amplifying the anachronism of Julius Caesar and the telephone.

Briceland to White-thorn to

No. 2207. ~~Echinocystis~~ marah oreganus (T. & G.) Howell ~~marah Cogn.~~ Pods naked at the pointed apex, pale or greenish but whitish at the point. Spines short, scattered and soft, of a darker green than the pod, in fact very dark green. Seeds 2 to 4, disposed in 2 cells, flattish — Along woody bank of stream in White Thorn vale. The dark longitudinal veins are prominent, also. Is not the character of the spines being darker than the body of the pod also that of the Vaca Mts plant? Does not appear in my notes of May 3; look up specimens. = E. oregona Cogn.

No. 2208. Rubus spectabilis Menziesii Wals. Salmon Berry — red and salmon fruits on bushes near together. Salmon berries = color of Diplacus glutinosus.

Kenny's June 23, 1903.

— Ceanothus incanus — 10-12 ft. h.
— " foliosus, up to 16 ft. h. Note the long peduncles + small clusters
— Douglas spruce leaders, young and tender, bending over in graceful plumes — not yet woody enough to straighten up.

There in camp — 1½ mi. south of Kenny's is a grove of them: One cut down was 13 years old, 14¾ ft. high, had made 2 ft 8 in. growth in one year — fine growth.
— Ceanothus foliosus very abundant, pure thickets of it. Bark of main stem or trunk bright green! — very noticeable.
— Madronas arching over the road, trunks flattened and in a long bow! Such camps will always come back in the memory. the challenging Madronas, the song of the mocking bird in the

Kenny's to Usal

in the early evenings, the call of quail in the quiet mid-afternoons and the occasional hoarse cry of a crow flying over.
- Fine grove of Chestnuts on seaward slope, north hollow, on the up-grade to Kenny's from French. The trees are not as large as in the interior but they had very tall straight trunks, either so little grooved or as in others so like Tan Oak trunks as to be scarcely recognizable as Chestnuts. The bunks showed the whitening effect of proximity to the ocean. Redwood bunks whiten up too. Some in White Thorn looked so smooth and glistening as to be utterly unlike Redwood - more like

June 24, 1903.

some Douglas Spruce. Of course this is not near the ocean. Many Redwoods had 2 or 3" main bunks" above 10 or 20 ft.
- Concerning Douglas Spruce mentioned on previous page - three years growth before this season were successively (upwards) 2', 2'6", 2'8". The diameter was 3 in. at ground.
- Camped 1½ mi. s. of Kenny's at Frazelle's - a spring and open place there on ridge.

No. 2209. Hookera terrestris (Kell.) Usal, on dry hills (in hard ground), facing the sea. Umbels right down on the ground, no peduncle above at all!, suggesting a Brodiaea minor whose bulb had been buried too deeply and just managed to get through to the surface. Anthers very broad (4-sided-elliptic) with a square notch! at apex and notched for

Usal to Cottonaby Creek

the filament at base! Staminodia not closing the tube (erect), a short but distinct mucronation at apex, the edges slightly turned in. Stigma reaching base of anthers. Outer segments much narrower than inner.

Sambucus racemosa var. callicarpa.

No. 2210. Red Elder-berry. Is making a fine display with its great cluster of bright red berries. In the bottoms.

Hazel's made an ideal camping spot - an open place on the ridge surrounded by Redwood, Douglas Spruce and Tan Oak. To the west stretched the Pacific Ocean, to the east the measureless forest and overhead the Redwoods! There were a few apple and peach trees left, and locusts and a poor little Rose-bush. A home destroyed and forgotten — that is sad to one.

June 24, 1903.

There is a great display of fire-burned redwoods between Kenny's & Usal, reclothing themselves with foliage, sometimes it is a great stub 70 ft. h. all enveloped in soft green stuff a foot thick; sometimes it is a column 200 ft. h. the dead limbs sticking out of the sheath of leaves, or the arms or limbs commonly become green again. The peculiarity is that all but the axis and primary branches are fire-killed and the innumerable buds give rise to branches which are all of the same length for several years. One tree looked something like a cross! The under side of horizontal branches do not send out new shoots.

Usal to Cotonaby Creek

– Tan Oak, 2 mi. beyond Usal (south), 6 ft 4 in. diam! 90-95 ft. h. This is on the ocean bluff tops where the fine redwoods are

– Coming down into Cotonaby Creek from the ridge one has a fine view of the windswept Redwoods in Cotonaby Cañon. Most of them look as if they had put all their foliage on their heads as a flat hat as a protection against the wind which funnels into the cañon from the ocean a few hundred yards away. Their whitened trunks stand out against the light-green ground-cover of Thimble-berry et al.

Rubus parviflorus.

June 24, 1903.

– Concerning the huge Tan Oak on previous page. This tree had been peeled and peeled for its bark. It lays right by the roadside. It is a truly monstrous trunk – not merely at the base but also for a long distance up. Fifteen rains of bark had been removed from the main trunk. I think doubtless it is the largest Tan Oak known — and corresponds to the Big Oak of Big Oak Flat.

Just at the top of the hill S. of Usal lives Jeremiah Sullivan. Jerry is a garrulous and very amusing old bird and likes to entertain campers. He has plenty of hay. We did not stop there but met him on the road. He referred to the Laytonville & Blue Rock country as

Usal to Cotonaby Creek

the "sheep country" and said he would'nt live there. They raised "nothing but half-breed women, gophers and rattlesnakes".

The next man S. of Sullivans is Turner. His place is in a beautiful spot among my beloved Usal redwoods. Several very fine trees stand in his yard. The trees or groups of trees here are isolated more or less - not in densely uniform clumps. In his yard, one glances aloft to the summit of these dignitaries and then the eye travels slowly to the bottom. The trunks are not clean shafts below but are cascaded with beautiful

June 24, 1903.

brackets of foliage more or less dependent. Above, there are the original branches. Below these branches have been broken off and a spreading tuft of foliage comes in its place. These lower tufts give the column a peculiar charm - they do not look like branches which attempt to detract from the axis but rather as supremely graceful sprays which have been tacked in place for pure ornament.

I presume the fine trees covering the tops of the ocean bluffs between Usal and Cottonaby Creek will gradually pass away as railroad ties are being gotten out now. There was in past times

Cotonaby Creek

some very sizable Fan Oak in these Redwoods just here which inclines me to the belief that the Redwoods here at this point have always been more or less open.

- Just above Dick Devilbiss' place on Cotonaby Creek where we camp is the Hollow-tree country. Devilbiss says that they are moving out of there - going away. This was an annotation of my remark that the country was losing its population, that the general merchandise store at Scottsville had burned down and had not been replaced, the one at Usal had closed, and the one at Rockport is closing out.

June 24, 1903.

- At Rockport the word is spelled Cotonera on the sign of the Cotonera Lumber Co.
- At dusk two men with rolls of blankets walked into the open at Frazel's and asked where the water was. They were not particularly hard-looking nor were they in the least attractive. They might be described as working men out of work drifting. They had been working at Klondyke near Garberville and will work the next time they find a job again or are broke.
- At Usal we succeeded in buying bread at the Usal House, the only place in the whole town that showed sign of being occupied, from the Chinese cook. "You want bread?" Yes, how much a loaf? "Ten cents". He turned to get

Botonaby Creek

me a loaf. Give me two loaves, said I. He wheeled about and asked "How many men"? I told him. This is so very characteristic of a Chinaman!

June 24, 1903

Digitalis purpurea L.

"No. 2211. / Foxglove. Common about the Devilbiss Ranch. Very handsome - 3-5 ft. h. Anthers all divergent, finely mottled. Lower side of corolla throat splotched with white and with a brown dot in the centre of each splotch. Corolla very shortly lobed, the upper lip shorter than lower. Calyx-lobes distinct, the uppermost smaller than the lower. Flowers on a plant sometimes white.

Bontonaby Creek to Fort Bragg

– Some old places near Westport have the Silver Poplar in the yards. One old-time place in a creek hollow had Lavatera assurgentiflora shrubs about the house.
– More and more abandoned places, Kibesillah and S. This country, however, has more of a sense of paths. The people made improvements of a permanent character; they built a church here and there. But Usal – altho the improvements as to houses will last about as long – nobody expected to stop there permanently – and so it makes a difference.

June 25, 1903.

No. 2212. Eryngium armatum C&R.
Plants spreading. Bluffs over the sea – Near Newport.

No. 2213. Gilia squarrosa H.&A. = Navarretia
With 2212.

No. 2214. Gnaphalium. With 2212.

No. 2215. Madia sativa Molina. With 2212.
Herbage very stipitate-glandular. Corolla-tube very short-hairy but not glandular. Rays yellowish with purple-brown tips.

Cotonaby Creek to Fort

- Just before reaching Inglenook there are some clusters of Redwood which illustrate finely the effects of wind on these trees. Some of them have all their limbs and foliage in their tops - just as at Cotonaby Creek - but their appearance is different. Doubtless due to color.
- The sand-dunes at Inglenook are still advancing resistlessly. The county road in one place has been moved twice already and there will soon be a demand for a third removal. The places along the road here are numerous - every 400 or 700

Bragg. June 25, 1903

yards or even less - small cottages mostly.

- Camped at Fort Bragg on the ground of the Union Lumber Company. Mr. S. P. Johnson is the President of the Company, Mr. Plummer, the General Manager, Mr. Weller, Manager of the store, Mr. Gracie, Superintendent in the woods. The Company employs ordinarily about 2000 men. On account of the recent strike it now has only about 700 on. Both sides of the mill are running.

Fort Bragg

– Redwood stump at logging camp on Noyo, 9 ft. 4 in. diam. longest way. 1223 rings counted and 150 estimated at burned center by Mr. R.A. Swales.* I should have said 100; however, he has had considerable experience counting Redwood rings.

* Forester, Union Lumber Co.

June 26, 1903

Tsuga heterophylla Sarg.

No. 2216. Hemlock Taken from same tree as bark sample North slope, bank of Noyo River, north fork, about 16 or 20 miles from Ft. Bragg by railroad.

Picea sitchensis Carr.

No. 2217. Sitka Spruce. Leaves spread equally every way except straight down on the under side. Very narrow & Cuspidate - prickly. Two stomatal bands on under side. Leaves on under side of branchlet are first to fall, leaving prominent raised scars. The lateral branchlets seem invariably to arise from buds a little back of the terminal instead of alongside of it as in Abies grandis. Look this matter up further. – Noyo. Also mature cones.

Fort Bragg

E.A.

- Mr. Johnson estimates the stand of Redwood today as 30 billion. The Union Lumber Co. has enough land to cut for fifty years at their present rate of milling The Big River Co. has enough for 75 years at their present rate. They began to cut in 1852.
- Bishop Pine not milled here. Heart-wood very durable. Union Lumber Co. has filled a piling order with it. It makes a fine stand. "Ah if we could only grow Redwood like that says Mr. Johnson. So thick and straight and tall. If we

June 26, 1903

could only grow Redwood so!

- Rose Bay sends up stump sprouts after a fire.
- Picked up a set of Tsuga hetero-phylla cones from the ground beneath a tree on the bank of the Noyo River - smallest ~~conifers~~ on any California tree.

Fort Bragg

– A Fort Bragg Indian came into the Union Lumber Co's store where I was waiting for Mr. Miller. He was very garrulous in praise of Mr. Miller. At length he said:-
"Mr. Miller he fine man, very fine man. I know him long time"
Yes.
"Oh. Yes. long time. I know him Tibesillah. He get married there. She fine woman. Yes, she very fine woman. – He got the same one yet!"

June 27, 1903.

– Stinking Fir = Abies grandis. So called because of its disagreeable odor. Leaves come out all around, on every side, but invariably spread out in two ranks, making a flat spray, at least on horizonal or semi-horizontal branches. Trees 150 to 200 ft. h. all through the woods. Ranges as far east as Melburne on the Ukiah road from Mendocino city. One broad white stomatal band on either side the midrib. The leaves on top of the flat spray have the peculiarity of being much shorter than those that originate from the sides. Terminal ~~buds~~ branchlets usually give rise to 3 branchlets each season, a terminal and 2 lateral. It is little used for lumber. It is regarded as inferior and little is cut. The 10-ft.

Fort Bragg

fence which is being put around the Union Lumber Co's Mill (just now for the purpose of keeping out strikers) is made from this tree.

We were most hospitably entertained by Mr. C. R. Johnson. His residence stands in the centre of town, on a little eminence and occupies a whole block. Just west of it are several of the old Ft. Bragg building. A white building, military characteristic build of 50 years ago, the hospital, and a cottage which formed part of the cottage barracks.

Mr. Johnson lives here with his family two months in the summer. Mrs. Johnson is a pleasing woman of superior mind to the average woman. There is a grown daughter and two boys in the high school. A friend

[Cont. middle next p.]

June 27, 1903.

- Blue-blossom asserts itself very strongly on the cut-over Redwood lands. Whole hillsides are covered, or half-covered with it often. It is by far the most prominent successor of Redwood on logged hillsides. Mr. R. A. Bowles says there is no brush like it for wood-ticks - that you will get covered with them in going through it from the bottom to the top of a hill. (= Ceanothus thyrsiflorus).

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of Miss Johnson, a Miss Dresbach, is with her. (cf. my letter to Mr. Otis R. Johnson in Jepson Correspondence, June 9, 1941.

Fort Bragg

– Chinese cooks are employed in the cook-houses of the various camps in the woods of the Union Lumber Company. They are the best help because they are good cooks but most of all because reliable. While help in a logging camp would go on a drunk with other men, and the crews would come in after a hard days work to find no dinner.

The material of the food is good and wholesome but is served roughly – as might be expected. The men "file in" with unwashed faces – at least at midday – and eat with their hats on. They get through in a hurry. I should have to be good and hungry to

June 27, 1903.

eat their fare in the way that it is served.

To wash the knives and forks the chinamen puts in some what water in the pan and shakes it about industriously. Then they go into a basin with clear water and are then laid out on clean flour sacks to dry. The Chinamen are very clean. A fork dropped into the sink. It was picked up, washed in hot water and dried with a towel and thrown in with the rest

Fort Bragg

– The logs are pulled down the hill by donkey-engines, some with drums which wind up the cables, some with old fashioned spools which receive the cable by hand. We watched several logs taken off a steep hill by the men. The first went straight down. It got its nose blocked once but the men released it and it went on down. The next log started, then turned sideways and began to roll creating a terrible fuss. It seemed to us, above it, that it might land on top of the engine crew. It struck a tall slender Douglas Spruce, broke it off, and as the

June 27, 1903.

towering mast started toward the bottom of the canon the engineer deserted his post and fled. But it fell short of the engine and things went smoothly again. In these woods they bark or peel the logs at any time, altho they peel better at some seasons than others. After sawing the logs into lengths a woodsman bores the end of the log that is to go down hill and into this end the hooks are driven. These hooks accumulate of course at the rail-road landing and as they are heavy for men to pack back they are loaded into a little boat cut from a spruce log – a flat boat, ~~with~~ made bow-wise at both end. This is hitched on

Fort Bragg

to the return cable - which is endless and follows the track which the logs came down.

- Lowland fir very smooth-barked and very white. Trunk a little rough at very bottom. May be recognized further by its flat sprays. Its bark is not unlike often the smooth mottled bark of Douglas Spruce but the flatness of the sprays tells at considerable distance.

- Hypochaeris radicata - exceedingly abundant everywhere in the pasture lands. Dolly ate it and I noticed a roadside picking off the flower-heads.

June 27, 1903.

- Sitka Spruce - bark variable - noted as far as Caspar. Not many trees of it.

- Bishop Pine - bark rough and at length deeply fissured - very brittle under the axe. They ring the trees at Caspar to kill it out. The young growth is very uniform, dense and pure - just the way a stand for lumber should be. However, since the tree is no good for lumber a picturesque element for the coast is ensured.

Fort Bragg

-No. 2218. Salix ~~Sitchensis~~ hookeriana ? Barr. (or scouleriana). In hollows and big creek gulches along the coast. Stipules very prominent. Trees 12 ft. h. - Caspar

Prob. Salix scouleriana crassifolia Det: C. Sch.

Marah oreganus (T. & G.) Howell
Echinocystis oregona Cogn.

No. 2219. Big Root. Cotoneva Creek All the pods with a very long beak - even the smallest. Echinocystis marah Cogn.

Marah oreganus (T. & G.) Howell

-No. 2220. Big Root. Rockport, on logged hillside. Pods without spines save one or two insignificant ones. Echinocystis oregona Cogn.

No. 2221. Red Elder-berry. Usal. Trees 12 and 14 ft. h. Canon flats of the village.

June 27, 1903

-Vaccinium parvifolium. Crimson berry when ripe with a hollowed "eye" or rather cup at top which is prominent. The calyx-rim becomes fleshy and colored - and so the above formation results.

No. 2222. Rose Bay. Kenny's to Usal. Sometimes with nearly white flowers.

=R. macrophyllum
Rhododendron californicum Hook.

Fort Bragg to Noyo to

– Mr. Black is the name of a nice old gentleman, probably English, who lives at Noyo, and who offered to show us a camping place, and later gave us a place alongside his barn + some hay

No. 2223. Abies Oregona. typical. Near Noyo. Bark taken from this tree for chemical analysis. See Sampler sent Sudworth, No. Bark very red on ends where cut, and the inside shading into crimson areas which is very handsome.

Melbourne, June 28, 1903.

– Hemlock noted in the woods as far as the Portugese village or wayside hamlet or cluster of houses four or five miles west of Melbourne. The trees are striking – at least when young. The branches and branchlets and foliage are very fine or slender. The sprays droop (not pendulous) but cascade-wise, and the leader is drooping. Bark is exceedingly rough on a tree within 1 mi. Mendo-City by road. Plates small, numerous, inch high in clear, giving a very regular warty appearance. Trees 100 to 150 or 175 ft. high. See bark specimen, Samples sent Sudworth, No. 70. Tsuga heterophylla.

Fort Bragg to Noyo to

– Mr. Swales says. Big logs taken out of pond are often split with dynamite for the band saw. He says there is not much waste, the hole being bored very deep and the experience of the men helping to prevent waste. The mill-pond is simply a convenient means of storing and handling a lot of logs.

– The shingle mill is an interesting – nay a fascinating spot. Logs which are below grade for the mill are used. One is placed on a car, which is moved in front of an ordinary but large cross-cut saw which is worked by a wheel (steam-driven) in a such a way that a block the length of the shingle-to-be is quite rapidly taken off. As soon

Melbourne, June 28, 1903.

as the block comes off it is laid flat and the two men who attend the log seize axes and chop off the rim of white sap. It is remarkable how quickly they take off the sap and how little waste of heart-wood there is. Then they split the block into fragments, some of which are wedge-shaped but they do not split from circumference to heart into regular wedges as one might think. The men are guided by medullary ray or more by annual-ring checks since the latter are more frequent. Then a block is put into a clamped iron frame (the cut ends abutting against the clamp) and the point of the wedge projecting a bit so

(cont. at middle next p.)

Fort Bragg to Noyo to

- There is often quite a jungle on the coast under the Redwoods covering the forest floor. This is not low like the chapparal of the Coast Ranges of the interior but is 10 to 16 or 18 ft. h. It is composed mostly of Ceanothus, especially C. thyrsiflorus or Blue Blossom

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that the edge of the circular saw will take off a piece. By means of a cogged wheel device the block is automatically moved forward for the next cut but moved further at top than at bottom; at the next cut the block is moved further towards the saw at bottom than at top. This alternation is automatically accomplished by the spacing of the cogs in the wheels at top and bottom of

(Cont. middle next p.)

Melburne, June 28, 1903

Talk about Redwood being light! It is heavy as - well - just heft a piece freshly sawed. It is very heavy. Of course it is full of water and only when it dries out thoroughly does it become light.

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the clamp which holds the block. The shingles, therefore, come off with the point alternately from top and bottom of the block. One man receives the shingles. Defective shingles are thrown down a waste chute; the good shingles are seized 2, 3 or 4 at a time and the edges trimmed by sticking them into the mouth of a machine, apparently which saws them off uniformly. This is done with incredible swiftness and

Fort Bragg to Noyo to

the shingles are thrown onto a inclined plane. At the bottom of this a man packs them into bunches by means of a frame. This is done with great rapidity. At the same time this man culls the shingle, throwing out the culls on to a second inclined plane at the lower end of which is another shingle-packing machine to make up bunches of 2d-grade shingles.

— There is great waste in the Noyo River logging areas. No attention is paid to any tree which is not to be taken. Many logs are left as unfit which in the East would be in the merchantable class. After the ~~logs~~ trees come down the area is fired to get rid of brush and

Melburne, June 28, 1903

tops to facilitate getting out the logs. The working practice here has always been so - Grace, the Supt., would laugh at any other proposition. And yet fire must be done away with. It is really a costly proposition. It is true that the immediate cost of getting out the logs would be greater (and this is what the lumberman here looks to and is as far as he sees) but there would be a saving on logs which would more than offset that and this the lumberman does not see or is not ready to see, but Mr. Johnson is willing to see it if you can prove it to him. Now this is considering standing trees, second-growth and sterilizing of soil at all which must in time for a company that is justified in looking

[Cont. middle next p.]

Fort Bragg to Noyo to Mendocino Co-

Tsuga heterophylla Sarg.

No. 2224. Hemlock. Near Mendocino City. Bark taken from this tree for chemical analysis. See Samples sent Sudworth, No. 64.

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ahead for a great item. They say Redwood does not burn yet Mr. Swales considers the loss from partially burned logs very great.

After the log is taken to the mill the waste is 20 to 30 % in cutting into boards. A good deal of the waste - compared with 10 years ago - is utilized for laths, grape-vine sticks and box-lumber - but there isn't much demand for Redwood box lumber.

Melburne, June 28, 1903.

No. 2225. Composite - Chrysanthemum segetum. Along the fence-margins and scattered thickly over half-cultivated field on bluffs overlooking sea near Caspar.

No. 2226. Stinking Fir (Abies grandis) Bark specimen taken from this tree. See Samples sent Sudworth, No. 63. bark specimen. Noyo.

Fort Bragg to Noyo to

No. 2227. Salix lasiandra. By stream at Comptche, 15 or 20 ft. h.

No. 2228. Willow of hill slopes. Trunk very smooth and mottled, slightly like an alder trunk but not enough to institute a comparison. The trunk is, of course, small. Near Melbourne.

Melbourne, June 28, 1903.

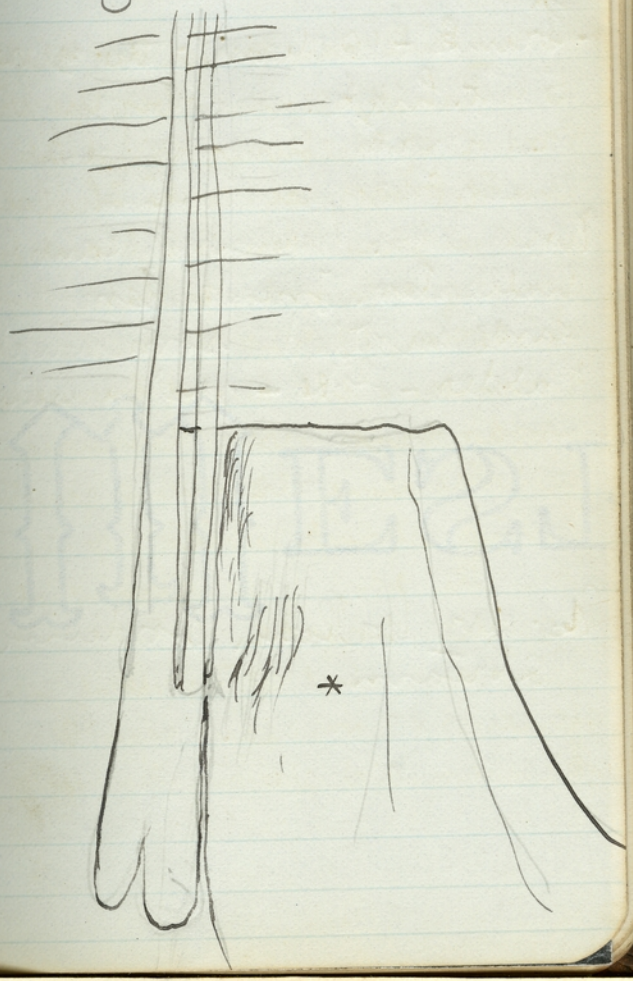
Melbourne

Mendocino Co.

– Went into camp for the night at a beautiful spot by the stream 3 mi. E. of Melbourne and 26 mi from Ft. Bragg acc. to the Shafsky road signs. There is a beautiful circle of redwoods, probably third generation, 17 X 28 ft. on the inside. A number of cut and of burned redwoods there with downward growths along the stump from the stump sprouts which spring up on the edge of the stump at the cut surface.

Trunk about 4½ ft through at point *. Sprouts 5 + 7 in. diam each. Breadth of 2 downward growing portions = 13 in.

June 29, 1903



Melbourne to Comptche

Mendocino Co.

– Redwood cuttings – trunk at 1 ft. (stump sprints) 10 in. diam., 30 years old and 50 ft. h. Mr. Mott found one 50 ft. h. which he thought 16 years old. The rate of growth of Redwood stump sprouts is something that has never been studied, is an exceedingly interesting field, and is ready and open for some one.

No. 2229. Willow, forming a thicket along stream at camp. – 10 to 14 ft. h. Camp. betw. Melbourne and Comptche.

No. 2230. Madia gracilis (Smith) Keck with preceding but on open hillside.

June 29, 1903.

– Hazel bunks or rather poles are used by teamsters to bind down loads of ties, etc on a wagon load. They like them if they can get a pole large enough. They are very tough and strong, "can hardly break them". They are also used for broad-axe handles in making ties. For handles it ~~they~~ must be possible to fashion them just right, as a handle must be turned one way for a right-handed man and the other way for a left-handed one. It was interesting to me to see a load of redwood ties bound down with a hazel stick twice in the Eastern states sled-loads of wood are bound down similarly with Ostrya or Carpinus

Melburne to Comptche
Mendocino Co.

— A. McDonald, Comptche House, says second-growth redwood trees from stumps of trees cut 35 years ago by Albion Lumber Co. have been made into ties by him, 6 to 8 ties to a tree and all sapwood cut away. The Albion Lumber Co. has sold its railroad (18 miles of track) to the Santa Fe people. Their people are buying up all the Redwood lands that they can at $10.00, $15.00 and $20.00 per acre. Some people will not sell even at the higher price, believing in a still further advance.

June 29, 1903.

No. 2231. ~~Azalea~~ Rhododendron occidentale Gray. Along stream bank with 2229. Very fragrant. Note the blossoms fallen and hanging by the tips of the styles.

No. 2232. Tan Oak. Stump sprouts in shade — often russet or a rich brown. In sunlight and particularly on crown of tree the season's shoots are silvery.

No. 2233. Lilium pardalinum Kell. Streambank in sand (with #2231) Segments recurved — underlapping, the lower 2/3 yellow, with brown blotches, upper 1/3 solid red.

No. 2234. Halfway-House to Low Gap — tree remarkable for its narrow leaves.

Comptche to Half-way House to

- Tan Oak shrub sprouts 7 or at most 8 years old, sample taken for analysis.

Low Gap, June 29, 1903.

- Tan Oak tree 50 years old, bark series taken for analysis.

Half-way House to Low Gap

- Abies grandis is at Half-way House. I noticed but a few trees scattered here and there.

June 29, 1903.

- May lived at Low Gap, about the old barns at stopping place - every ray of the head turns straight down around the stem at night! The nights here are quite cold.

No. 2235. Madia gracilis (Smith) Keck. Open spots in woods. Rays citron-color (pale yellow), 5 to 7; 1½ lines long. Fls opening in early morning, closing in the afternoon. - Low Gap.

No. 2236. Navarretia squarrosa H. & A. Odor very pungent and disagreeable. With preceding.

- Ceanothus integerrimus - noted one shrub at Low Gap.

Low Gap to Ukiah

– Driving along the ridge yesterday, the leaves from a high Madrona came fluttering down on the roadway ahead of us. We drove straight through shower. It was a calm day, the light the woods were pulseless in the quiet – but anon a whiff of a breeze would stir – and then the Madrona shower.

June 30, 1903

– We passed 7 four-horse teams on the grade, hauling out Redwood from the Redwood Mills near Low Gap. The teams were made up of fine draught horses but it was a great struggle to get up the hill. The freshly sawed Redwood is very heavy. Their loads were sawed yesterday. The teamsters say it will run 8 to 10 lbs. to foot; some of

Low Gap to Ukiah

it is heavier than most green lumber. Trees on north slope make heavier lumber than trees on east slope or on south slope. Trees on ridges have much lighter wood than trees in canons. - From Low Gap one climbs to the summit of the divide which is Pine Ridge. Purdy says that in this country the Fan Oaks (with the exception of trees favored by locality on shoulders or ponds) were all about 40 years old at the time he examined them. That meant that they had grown since the coming in of the whites, since when fires have been stopped as an annual feature. The Indians systematically fired the country both to keep their trails open and to drive game. The whole problem of forestation in this country is to keep out fires - the woods will grow up themselves - even

June 30, 1903.

where previously there have been no woods. Cattlemen are coming to make regular cuttings and girdling to improve the feed. - Between the summit and Ukiah there are many oaks. - Fan Oaks & Black Oaks on the summit, occasional Maul Oak, down down Garry Oak, then Interior Live Oak comes in, on the lower stretches there is Blue Oak, and finally in the valley floor we have Douglas Spruce, Madrona, Interior Live Oak (Purdy says Encina), Black Oak and Valley Oak.

Ukiah

- Mr. Evans of Orr and Evans, Planing Mill have shipped Mush Oak to S.F. - or rather, they made one shipment. Used for furniture, good for floors, will not check in seasoning. Valley Oaks seems to be known as Mush Oak everywhere about here. That shipped from here came from Scott Valley in Lake Co. where the stand is very fine. Mr. Whitehorn says a tree near town made 45 cords of wood beside a great stump not chopped up.
- Mr. Whitehorn says he helped saw Tan Oak long ago into slabs which were weighted down for a year, then run through a planing mill and tongue and grooved, and weighted down for another

July 1, 1903.

year. Then put on the floor of the kitchen of Mrs. Reeves, covered with oil 4 inches deep, protected for 2 or 3 mos by a false floor and then it was ready for use. That was 30 years ago and today it is like a looking-glass.

- In the freight-yard here alongside a spur track one may see now a score or possibly 30 more logs lying around in a very indifferent and careless sort of way; they would not attract any one's attention, perhaps, except as 4 ft. or 5 ft. cordwood - so unsuspicious are they. But they are the last of a series of large shipments

Ukiah

made from this place to S. F. They go to G. A. Howard who bought land in Mill Creek Cañon and cut out these oak logs for manufacture into furniture. Mr. Evans calls them Florida Oak or Valparaiso Oak. He also knew the names Spanish Oak, Pin Oak and Georgia Oak. He admitted that they were the same as Maul Oak. He repeated frequently the name Iron Oak, because of the hardness of the wood.

It seems to me now altogether certain that the legend that leaf. oaks are of no use is quietly ignored by certain manufacturers who are making fine use of our oaks and passing the wood along as the high-priced Eastern Oak.

July 1, 1903

- Mr. Evans referred frequently to what he called Burr Oak but I could get no clue as to what he meant, altho Mr. Whitehorn knew the tree of old and says it once grew in Jack Creek Cañon.

Jos.

Mr. Saunders, Bot. 4, says:
Burr Oak = Castanopsis chrysophylla! People generally call it Burr Oak in Mendocino Co.
- Sept. 9. 1908.

Ukiah

– Mr. Whitehorn says Redwood trees were at one time cut down with axes; this necessitated a huge cut on a big tree. In order to save on the felling (a big job) the chopper began well up the tree above the swelling base. This resulted in great waste. One often sees stumps in old logged areas 6 to 8 and possibly even 10 ft. high. Nowadays they saw the tree down which is a great saving in labor and in lumber. The saw-log which is being swamped out is rounded at one end so as to make a sort of round board. This is done with a short-handled axe and is called "snipping". Logs so treated will not catch on the skid logs as they

July 1, 1903.

would otherwise. A skid log would be sprung right out of the ground if the square end of a log caught it. The hooks which are driven into the sides of the log are connected by chains in pairs by means of connecting ring to which the cable is hooked. These are called "dogs".

– Purdy talked very entertainingly of variation in the Lilies and in Calochortus. "If you want to hunt species, there is the place. You can make species until you get weary and then not be through. These variations can be recognized too, any number of them, but I do not see the good of describing them as species. There is no demand for it, so to speak. Of course in a thing which you want to sell and the public want then there is a need that a variation be named"

Ukiah to Lyon Valley
(Miyakma Range)

No. 2237 Salix hindsiana Benth. Silver Sand-bar willow, 14 ft. high. Long shoots on top of bushes with curving tips – the green tissues soft like a Douglas Spruce. (Shrubs up to 22-25 ft)

No. 2238. Green Sand-bar Willow, 14 ft high (10-18 ft. h.)

No. 2239. Douglas Oak. See measurement 7 pp. ahead.

– Quercus chrysolepis ~~Garryana~~, sapwood very variable in thickness – varing from 1/2 in. to 8 measured in. (or even 12 in. I judge by the eye). On same trunk it varies a good deal, 1/2 to 1 in. on thin sap, to 2 or 3 in. on thick sap.

No. 2240. Quercus Wislizenii Db. See Sudworth Samples, No. 82. Tree 2 ft. diam. at 3 1/2 ft. from ground where bark spm. was taken. 55 ft. h. – Lower Mill Creek Canon

July 2, 1903
(Mill Creek Canon)

– Typically Maul Oak has a white or whitish trunk, although often mossy, quite smooth as to the general surface but fissured superficially in long narrow ribbons But one may find on other trees and even on the same trees on the other side of the trunk say, deeply fissured bark broken also transversely. I think as fine a lot of trees as are to be found are or were in Mill Creek Canon, tall clear clean trunks, straight and unbranched for 30 to 60 ft, which always characterize the most finely developed specimens on canon sides or in cañons. There are some fine Bay Laurel (100 ft. h.), Douglas Spruce, Oregon Maple, Garry Oak, Black Oak, Torreya, Ash of Oregon.

Ukiah to Lyons Valley
(Mayacmas Range)

- Purdy's lily garden is in Lyons Valley on the summit of the range towards Clear Lake in Lake Co, just over the line. He says it is the finest soil in the world for lilies; keeps loose and moist without cult., all necessary to keep weeds out. Here are Lilies, Humboldtii, Parradinum, Parryi, by the thousands. Burbank's hybrids, 25 or 30, of them are being tried out here. Until recently the world knew but 6 or 7 lily hybrids all told. All of his small bulbs (Calochortus) have been transfered to the canon just above the head of Mill Creek 3/4 of a mile. Here are terraces in the bottom of the canon built up by the limey ~~stone~~ in the water, forming deposits which have made abrupt walls in the canon Bed at intervals. He is making use of these natural flats, and in addition to bulbs will have the native ferns, and specimens of the forest trees.

July 2, 1903.

- Mr. Purdy tells me of a case of Sequoia burned over by fire early in the season. It flowered in the fall and continued to flower in the fall year after year.
- Arctostaphylos Stanfordiana does not stump sprout acc. to Purdy.
- "There is a Juniper in Scott Valley by the road between Lakeport and Upper Lake; there are more on Scott Creek further up" but I have not seen them." - Purdy. said to be
- Black oaks here were burned over by fire just as they were shooting in the spring - they came out in June again with shoots which for brilliancy of coloring surpassed for the fast Spring effects.

Ukiah to Lyon's Valley
(Miyakma Range)

–"Erythronium grandiflorum – no mottling on leaves; coll. first by Lewis and Clark Expd; clear bright yellow flowers the color like a Ranunculus Californicus buttercup. Does not range into California at all," says Purdy. It is of low wet places; runs of hillsides. If any northern one it is giganteum. (The habitat remark may have applied to last-named sp.)

–"Erythronium revolutum – very peculiar distribution, commencing at the Navarro River and running northward to Oregon [and British Columbia ?] but with such a long range the area covered is only 4 or 5 mi wide. There is a color change northward ranging from white [to pink and other shades.]"– Purdy.

No. 2241. Hazel. Mill Creek Cañon. Corylus cornuta var. californica

No. 2242. Godetia amoena. G. Don. High slopes just above Log Barn, head of Mill Creek Cañon, in brush. Abundant.

July 2, 1903.

– The Ukiah valley from Purdy's trail is a mighty pleasing prospect. The level of the valley rises slightly to the westward. Ukiah is near the eastern hills which rise rapther abruptly into a high mountain wall as it does similarly on the east.

– The Coast Range valleys are the most charming valleys of their kind in the world. The finest in California is the Napa Valley which is wonderfully beautiful at any season. To live in such a valley – that were a fair estate to attain. Other beautiful ones are the Ukiah valley, the San Ramon valley, and, acc. Purdy, that stretch of the Sacramento valley between Chico and the foothills.

Ukiah to Lyons Valley
(Miyakma) Range).

– Ceanothus cuneatus – very marked contrast between color of foliage and branches – the dull-green leaves against the white branches

– Maul Oak tree, just above a rustic gate (75 yards) in Mill Creek Canon, 16 ft 4 in at 4 ft. from ground, the trunk practically maintaining its girth to 35 feet where it parts into 2 great branches forming the crown the top of which is 110 ft. above the ground. This tree is well up the canon.

– Sweet Shrub here in Mill Creek Canon. Is it in Seaward Ranges?

– Depth of soil is very great at Purdy's new garden. In making the terraces he has cut vertically 4 ft. or 5 ft. and still no indication of the soil giving out.

July 2, 1903.

– Douglas Oak, 12 ft. 4 in. at 4 ft. 3 in. from ground; stands just inside first gate on road to Mill Creek Canon; 60 ft.-h. See No. 2239.

– Fine Live Oak in farm yard opposite Asylum gate; shelters several wagons and room for more; is a a broad-headed tree.

– Fine Valley Oak, 110 ft. high, just beyond hop-field, south side of road inside fence, within one mile of Asylum (west).

– Fine Cottonwood (Fremonti) by Russian River Bridge, road to Asylum, 150 ft. high.

– No. 2243. Quercus Wislizenii. at Log Barn, head of Mill Creek Canon 10–12 ft.-h., forming part of chaparral here.

Lyon's Valley to Ukiah
(Miyakma Range)

– Purdy's Coast Range garden will be in time a most unique affair. At present he has been at work on it only a year. All of the tangle of bushes, etc had to be cleared out but he has already effected a transformation. He has Darlingtonia californica growing in fine style and other rare things. Of course it is especially in the lilies that he excels. He has amassed a most wonderful and exceedingly interesting as well as useful lot of information about the their methods of reproduction. So many have their own peculiar styles and ways of doing business or some slight modification of the plan prevailing in the genus or section.

– No. 2244. Same species and locality as 2243.

July 2, 1903.

– Mrs. Thos. L. Carruthers of this place has a kitchen floor of Tan Oak; it is oiled occasionally and scrubbed repeatedly – twice a week. It was put down in 1884, has worn very little and shows no signs of rot. She says that if the parlor floor were to be of oak she could entertain no possible objection to Tan Oak. Mr. Carruthers here interposed and said that he had a great deal of experience with it and that it would rot not so long as it were kept from ground. (Whitehorn spoke of Tan Oak skid logs that on the under side would rot in one year – on the upper would last two or three years). Carruthers

Uriah

praised Fern Oak wood for firewood
Even piled up outside it did not
rot. And it left less ash than any
other wood. Mrs. Carruthers had
a collection of native woods hung
up in her hallway - with designs
painted on them in oil.

— Whitehorn says people that dress
well are often living beyond their
means while the person in poor
clothes often owns half the town.
Yes. he knew Carl Purdy. He is a rale
fine. He's above the average, far
above the average. He knows a
great deal. Can talk well about
a great many things. But he isn't
thought much of around here, No.
Of course some people know he

July 3, 1903.

is a smart man but he isn't
known for much. He's just Carl
Purdy. Well, he has always
lived here since he was a boy.
He taught school here. Well, one
big boy wouldn't mind. Carl saw
he meant to defy him. He
told him to do the thing and he
said he wouldn't. Carl said if he didn't
he'd make him. Boy said he
couldn't make him. Carl said
he would and if he didn't obey
he'd give him the worst sort
of a licking. Well, they had a
fight and the schoolmaster won
and gave him a thorough
thrashing. The boy went home and
the boy's father threatened to whip
Carl. Carl was warned and when

Ukiah

he saw the man coming took off his coat and went out to meet him rolling up his sleeves. "Hello, Mr. McKinley, hear you're coming to lick me? Well I'm ready for you. Let's have it out, the sooner the better". But McKinley backed out - said Whitehorn gleefully - and Carr told him in reply that his boy was a bad boy and deserved all he got. That's the kind of a man Carl Purdy is. He has had a hard time of it too. Took care of several sick relatives for years - his wife's relatives, too - and he had a hard row to hoe. But I guess now he's doing better." All of which says Whitehorn.

July 4, 1903.

- Streamers of parti-colored flags on long lines have been run from the Court-house done out to various buildings on the opposite sides of the square. The effect is very fine. Every Pomo Indian is in town today. All Pomo women are exceedingly fat - they are on the whole almost repulsive - but for today ~~they~~ each one is dressed in bright garments of one color - that each one has her own color - and there is no mixing of colors unless in the head-cloth. They lend to the scene a decidedly picturesque element.

- Ukiah is to be one of the most attractive towns in northern California. It is finely situated; keeps its streets in good order and seems progressive. It is fortunate in having fine water

Ukiah

trees in its public grounds. There are five Black Oak trees in the public school yard, Black Oak & Douglas Spruce in a semi-park back of the high school - a fine lot of Madronas in a town square in the centre of which there is a bandstand.

A great many people are preserving the madronas in their yards. There are more Madrona trees (and young ones too) than of any other tree.

July 4, 1903.

- Lupins for Rabbits. — Near the Insane Asylum I met a man gathering the herbage of a Lupinus sp. to feed Belgian Hares. He said they were very fond of it.

No. 2245. Black Oak. Young trees in the cañons and higher up are conspicuous for their whiteness at this time! Spring dress!! Mill Creek Cañon. Upper. These young trees are often very "bushy".

No. 2246. Cnicus callilepis Thistle. Small plant. Rather common in the chaparral and usually larger and often more branching. This species is distinctively the "Chaparral Thistle". Region of Lyon's Valley.

Ukiah

No. 2247. Mimulus Bolanderi. Always (hereabouts) in best soil on the mountains. Lyons Valley. Especially common where there has been a little cultivation of rich hillside soils. Odor very strongly tobacco-like. "Tobacco Mimulus" is an invention.

No. 2248. Cirsium Breweri. Great quantity of it in a moist flat in Lyons Valley - I should say a pure acre of it - very striking and conspicuous on account of its peculiar silvery whiteness. Did not recognize it at first for

July 1-5, 1903

that reason.

No. 2249. Pickeringia (montana Nutt.) Near Log Barn, head of Mill Creek Canon.

No. 2250. Oenothera hirtella (Greene.) "The Terraces", near Lyons Valley.

No. 2251. Ceanothus integerrimus N.A. var. californicus (Kell.) Benson says Purdy, who remarks its great variability in color. Same station as preceding.

No. 2252. Apocynum (pumilum Greene, not A. androsaemifolium. Lyons Valley. Used by the Pomos for fibre, says Purdy, who also says they use Psoralea macrostachya.

Ukiah Mendocino Co.

No. 2253. Milkweed. Common in Bed of the Russian River. dry flats. Asclepias eriocarpa Benth.

No. 2254. Examples of fasciation of 2253.

No. 2255. Lilium pardalinum. Kell. Native near "The Terraces", Purdy's Garden, just above head of Mill Creek Canon; 6 whorls of leaves, 6 ft. h., growing in canon stream bed.

No. 2255A. Madia gracilis (Smith) Keck. Trail to Purdy's garden.

July 1-5, 1903

Samples Sent Sudworth

No. 77. Quercus densiflora. Sample taken at 3 ft. from ground on s. side tree. North slope. Tree 50 ft. high. Trunk 18 in. diam. W.L. Jepson, June 30, '03. Betw. Low Gap and Summit, on Ukiah - Low Gap Road.

No. 78. Same. The tree within 15 of tree which furnished No. 77. Data the same except trunk diameter = 20 in.

No. 79. Same. Eastern slope of Coast Ranges west of Ukiah but near summit of Low-Gap road. North slope locally. Trunk diam. = 3 ft. Specimen taken near base (2 ft. from ground on lower side) June 30, 1903.

Samples Sent Sudworth

No. 69. Quercus densiflora. Comptche, California, 1½ mi. E., up Ukiah grade, S. slope of cañon. Tree 45 ft. high and 1⅓ ft. diam. at one foot from ground where spm. was taken. Scattering Tan Oak among Redwoods. June 29, 1903

No. 70. Tsuga heterophylla, Sarg. Tree 125 ft. h., bark very rough, fissured into very small oblong plates which are very conspicuous at about 20–35 ft. above ground. North slope. Diameter 3 ft. at 4 ft. from ground. Mendocino Co., June 28, 1903.

No. 71. Quercus densiflora. Stump sprout, 7 years old, 14 ft. 7 in. high, 2¼ in. diam. inside bark at 1 ft. from ground.

Samples sent Sudworth

Comptche to Low Gap, June 29, 1903. There were 16 leading sprouts around this stump, the remainder having been shade-killed. The sprout taken was the largest and tallest. June 29, 1903

No. 72. Quercus densiflora. Series taken from axis of one tree, 49 yrs. old and 45 ft. h. Taken on ridge along which the road runs from Halfway House to Low Gap. & about 5 mi. E. of former place. Overshaded by open Redwoods. This no. taken at 1 ft (diam. inside wood = 7 in.)

No. 73. Same. Taken at 5 10/12 ft.; diam = 5 3/4 in.

No. 74 " " " 13 10/12"; " = 5 1/4 in.

No. 75. " " " 23 "; " = 3½ in

No. 76. Quercus densiflora. Second-growth stump sprout, beside Comptche and Low Gap, June 29, 1903. Age difficult to determine. At least 20 years old, not exceeding 28 years. Diam. of trunk = 5 in. inside bark, 1 ft. from ground.

- Redwood Bulletin for Mr. Johnson
- Prof. LeConte's Autobiography.
- Lewis and Clarke's Journal.
- Hann's Climatology.
- Mackie's Paper.
- California of the South, Lindley.

Samples sent Sudworth.

No. 61. Tan Oak. Trees 60-80 ft and 1½ 2½ ft. diam. Spm. taken at 5 ft had shed its ross! Six mi. S. Kenny

No. 62. Ross from ~~Taken at 5 ft.~~ same tree – ross about ready to fall; has fallen just below.

No. 63. Picea Sitchensis; Near Noyo. Tree 80 ft. high, the trunk 2 ft. diameter at 3½ ft. from ground. On bluffs one-half mile from Pacific Ocean.

W.L. Jepson, June 28, 1903.

No. 64. Tsuga heterophylla Sarg. Tree 115 ft. h. and 3 ft. diam at 4 ft. where spm. was taken. Noyo River, 15 mi. inland from Ft. Bragg. June 27, 1903. Tree on s. slope, near bottom of cañon.

Samples sent Sudworth.

No. 65. Abies grandis. Noyo, within a few hundred yds of the Pacific Ocean. June 28, 1903. Diameter of trunk = 3 ft at 3½ ft. from ground, where spm. was taken. Tree 90 ft. h.

No. 66. Pinus muricata. Noyo, on bluff overlooking the Pacific Ocean, June 28, 1903. Trunk 1½ ft. diam. at 2 ft. from ground (where spm. taken). Tree 50 ft. high.

– No. 67. Alnus Oregana. Near Noyo, 1/4 mi. from Pacific Ocean. Tree trunk 2 ft. diam. at 3 ft. where spm. was taken. Tree 75 ft. high. Herb. spm. also taken.

No. 68. Quercus densiflora. Tree 55 ft. high, on south slope. Trunk 2 1/4 ft. diam. outside bark at 1 ft. from ground; exposed to sun all day. Specimen taken just above rump at 4 ft.

4–5 mi. E. Half-way House on Mendocino City–Ukiah rd. 6/29/1903.

Addresses of Californians

– Ben Harris, wheelwright and deputy sheriff, Bricelland, (Uses wood of Tan Oak).

– G. L. Stone, Garbarville Mill, Garbarville (has sawn Tan Oak into planks).

– Mrs. George Hawkens, daughter of Chas. Wagner.

– Mrs. E. C. Oppenlander, Half-way House, betw. Ukiah and Mendocino City. Well-informed on Tan Oak bark.

– Mrs. Ada Smith, on road between Comptche and Anderson Valley.

– Mr. Dearborn Melbourne, six mi. below Comptche. Flies + breed. for Tan Oak.

All of last three addresses furnished by Miss Charlotte Hoak, formerly of Comptche, now 2824 Webster st., Berkeley.

Samples sent Sudworth

No. 80. Quercus garryana. Summit between Low Gap and Ukiah, Calif. Coast Ranges, June 30, 1903. Tree on ridge. Trunk diam. = 2½ ft.

No. 81. Maul Oak. Mill Creek Cañon, Ukiah, s. slope. July 2, 1903. Sample taken at 3 ft.; trunk 2 ft. diam. Tree 80 ft. high.

No. 82. Interior Live Oak. Mill Creek Cañon, lower part. July 2, '03. Diam. trunk = ~~[illegible]~~ 2 ft. at 3½ ft. from ground where bark spm was taken. 55 ft. high. S. slope.

No. 83. Quercus densiflora. Foliage Some new sprouts. Between Halfway House and Low Gap. Taken from shrubs. June 29, 1903.

mostly this season's leaves!

No. 84. Quercus densiflora. Turner's Ranch, betw. Usal and Cottonera Creek, ~~[illegible]~~ from standing peeled tree, showing characteristic blisters. June 24, 1903.

Word

Expenses - Briceland Trip.

- Coffee-pot	$ .65
- Axe-helve	.20
- Pot cover	.05
- Hinge	.05
- Can-opener	.15
- Candle-lantern	.25
- Galetta	1.00
- May 30, 1903.	2.35
Soups. Goldberg Bowen & Co	.75
	3.00
Sugar, 10, Cocoa 25, Prunes 25, 2 Milk 25, Oats 10, Matches 05 } Sills	1.00
	4.00
Drilling & tape	.55
	4.55

Gave Mr. Moth $2.00 for Baggage Transf. .50, Ticket .10, Print .10;

Groceries at Barrett's	3.80
Rent horses & wagon	30.00
Oil for harness	.25
Whip .50, washers .10 + breeching 2.00	2.60
Neckyoke straps	1.00
Four meals for two, Ukiah	2.00
Horses sherwood & Kelli Spring	2.00
Meat Ausland	.40
Groc. "	1.75
	48.35

Brot. forward.	48.35
Horses pasturage Briceland	1.25
Motts paid out	2.40
R.R. fare to Ukiah for Mott.	4.50
Low Gap & Ft. Bragg, feed for horses	2.75
Meat at Westport	.20
Horses at Cotoneva Creek	.50
Groceries at Ft. Bragg.	3.60
Hotel, resturant, etc Ukiah	2.10
Films, Ukiah	.40
Bale Hay, "	1.25
Shoes & overalls, Ft. Bragg	4.75
Can corned beef	.20
Stamps and postals	.50
Hotel at Ukiah and 2 breakf.	2.50
Resturant, 3 meals	1.25
cherries	.50
Ice-cream	.20
Bananas	.10
	76.70
R.R. fare of Mott to ~~Ukiah~~ S.F.	4.60
Fare to S.F.	.10
	81.40
Baggage to Berkeley Stat	50
	81.90
Self Berk to Ukiah & ret	9 20
	$ 91.10

Samples sent Sudworth

No. 46. Quercus Californica. 2 ft. from base of trunk 10 ft 9 in. in circumference. 6/17/03

No. 47. Quercus Garryana Taken 2 ft. from base on trunk 2½ ft. diam. 6/17/03 open woods.

No. 48. Red Fir (Douglas Spruce). From trunk 3½ ft. diam. at 4 ft. from ground. North slope, in forest. June 20, 1903

No. 49. Spent bark, Briceland Extractor

No. 50. Madrona tree 3 ft. diam near Briceland.

No. 51 Polyporus, on dead Tan Oak trunk (standing) near Endaie.

~~No. 52. Chinquapin - young tree 20 ft. by diam 4 in, strikingly like young Tan Oak. Kenny's~~ The characteristic species.

See bottom of next p.

No. 53. Tan Oak, near Kenny's 1 10/12 ft. diam at 4 o. south side of tree. Rather old tree on ridge just east of top near a spring.

Samples sent Sudworth

No. 54. Tan Oak. tree 53 ft. h., on top of ridge overlooking ocean & 1 mile away. Samples all taken from southerly side. First being taken at 2 ft (tree wk diam = 10 in) and up to & inc no. the top of the tree as follows. The thick bark ran to 5 ft and was slightly roughish & then became smooth & thin.

No. 55. At 8 ft.; diam = 9 in.
No. 56. " 18 " " 7 1/4 "
No. 57. " 29 " " 5 1/4 "
No. 58. " 38 6 " 3 3/4 "
No. 59 " 43 10 " 2 1/2 "
No. 60 " 49 " 1 1/4 "
Total = 53.

(The specimens are provisionally numbered "Nos. 1-7, Mean Kenny's"

No. 52. Quercus densiflora. Rump bark, taken from same tree as No. 37. Taken very low down

Samples sent Sudworth

No. 25. Calif. Chestnut & Sherwood #2195 (herb. spm.) bark.

No. 26 Tan Oak. Sherwood. Typical interior forest, north slope. See notes June 6. Bark sample.

No. 27. Do. but Noss and flesh separated

Briceland, Nos. 28 to 45.

No. 28 Quercus densiflora. Bark from tree peeled in season 1903, taken from abandoned top, 2 3/4 ft. beyond last rim removed by peelers. Western slope. Bark infested with borers.

No. 29. Same but taken 8 ft. beyond last rim on same tree.

No. 30. Tan Oak. Standing peeled tree. Two rims taken off. All above abandoned. Sample from base of 3rd rim. Tree 50 ft. high and 8 in. diam 1 ft. from ground. Peeled season 1903.

No. 31. Tan Oak. Standing peeled tree 25 ft. high. One rim taken. All above abandoned. Sample from just above 1st rim. Diameter = 3 1/2 in. Age about 50 years. Peeled season 1903.

No. 32. Tan Oak. Peeled standing tree, peeled at least 1 year, probably in 1902. See descrip of this tree under June 12, 1903, p. 54.

No. 33. Can of borers in pieces of bark. Taken from same tree as Nos. 28 + 29. Also beetles

No. 34. Can of borers - many-legged in rotting Tan Oak wood on live tree, at burnt hollow at base.

No. 35. Tan Oak, borer-riddled wood from fire-hollowed base, same tree as no. 34, channels are ellipses, 1/6 in. the longest diameter and are mostly filled up behind.

No. 36. Umbellularia Californica. Bark. June 13, 1903. Taken from new base of tree, trunk diameter 2 ft.

Nos. 37 - 45 inclusive, all from one tree, stump to top. For detailed notes of each sample see under "Briceland, June 18".

Questions for 1903.

- Douglas Spruce, time of cutting + quality of wood?
- Red Oak? Examine wood of Maul Oak and Garry Oak.
- Rot in Tan Oak; borers.
- Count the sprouts from an old Tan Oak stump.
- What growth follows Redwood?
- Age of the Tan Oak.
- Date of building the Fremont Extraction
- Schomer woods - how many cords?
- Dr. Geo. McCowen, Ukiah on tanbark
- Tan Oak - details of both fls., esp. calyx + pistil. Chestnut, trunk diam? Longevity Tan Oak? Cost of the Sherwood fire? Must tanbark be air-dry? Leaves + fuzz when young? [Fuzzy both sides!]
- When do you peel Redwood? Does fire facilitate peeling? When do you fire?
- Butt cut - why less valuable?
- What do Redwood logs peel best?
- Medullary ray or annual rings checks - which more frequent in Redwood?

Addresses of Californians

- Miss K. Stack, 412 Ashbury, S.F.
- W. J. Ward, Mgr Philo Extractor, Mendo. Co.
- Billy Lynch, Ukiah, Tanbark Expert.
- Prof. D.R. Wood, State Normal, San Jose Biology.
- B. Massone, Grand Bakery, 1347 Dupont,
- Dr. H.M. Pond, Factory of Italian Galetta. 1500 Central Ave., Alameda.
- H.F. Kron, Kron Tanning Co., Santa Cruz
- Mrs. James Lawrie, Briceland, wife of Supt. of Pacific Oak Extract Works
- Mr. James Stitt, Ukiah grocer, etc.
- Mr. R.A. Swales, Ft. Bragg. Forester of Union Lumber Co.

Photo. record.
5 Pool No 1.

1.
2.
3. Garry Oak, Van Arsdale Ranch
4. " " " "
5. Calif. Chestnut. See measurm. Sherwood June 6
6. " " " "
7. Mixed forest. Spruce, Tan Oak + Chest. Sherwood.
8. " " (some Redwood here also) in forest
8 = Chestnut trunk do 4
9+10. Tan Oak, isolated, half way to Laytonville from Sherwood
11. "Bald Hills" near Laytonville. Bay Laurel & Garry Oak in gorge, Garry Oak on hill, also a big manzanita bush as so, on farther ridge Yellow Pine & Douglas Spruce.
12. "The Man from Laytonville

5 pool No. 2. (No 1. —) No 2. Bald Hill from Blue Rock Ridge, Douglas Spruce, Tan Oak, Madrona, Garry Oak & Bay Laurel on borders. 3+4 Yellow Pine, Blue Rock the oaks if any = Black Oaks. Bushes = are. manzanita. 5. Maul, Black & Garry oaks, Bay & Yellow Pine. 6. Tan Oak & Douglas Spruce clusters on the hills above Harris 7, 9, 10 do.

8 = Forest ll. Yallo Bally with Douglas Spruce on the foreground hills. Perhaps some Garry & Bay Laurel. 11 = Tan Oak cutting near Bricland. 12. Mules loaded with Bark," "

Spool No. 3 - Tanbark peelings at Bricland, mule, peeled tree, tree with "ry" marks on it, a young standing peeled tree with one rim taken; Tan Oak trunk with long straight peeled scar gash. Also log peeled for 66 ft (tree 90 ft. h.); see further measurements on leaf 23. Log 14 in. diam at 5½ feet.

Spool No 4 (Bricland) 1. Felled logs which will rot on the ground 2. " " "

~~12 Lilium Humboldtii in Purdy's Gard~~

483 Spool No. 9. - 1. Lilium Humboldtii, Purdy's Garden, 2. N.E. hillside, Mill Creek Cañon, Madrona in centre (others around), Douglas Spruce on top hill, Wislizenii in bottom cañon, Garry Oak in immed. foreground. 3. Chamisal hill, Mill Creek Cañon with the Buckeye advancing into it. 4. Garry Oak trunk, 2½ ft. diam. checked into irregularly roundish plates 1 to 2 in. across. 6-12, Valley Oaks, 80-115 ft. high.

(4) 12, - 16, - 14, - 15, - ~~14~~, - 14 - 4 - 5.9 - 12.6
1 - 2 - 3 - 4 - 5 - ~~5~~ - 6 - 7 - 8 - Top
5A
taken 5.9 above 5